

Amateur Radio

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TINA VK5TMC

**ALARA's new president
brings a global focus**

**THE
LIGHTHOUSE
CHALLENGE**



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A WONDERFUL OLD TIMER

Grand lady operator, Mavis Stafford VK3KS has been a radio amateur for 70 years and a luncheon on the first weekend of June in Melbourne was held in her honour.

The occasion was organised by the Australian Ladies Amateur Radio Association, which she has actively supported since its formation in 1975. Full story inside.

Mavis Stafford VK3KS celebrates 70 years as a licensed amateur.



Below: A view of the cake, the President's Commendation certificate and a commemorative trophy presented to Mavis by ALARA.





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Our Cover this month

Our cover this month features Tina VK5TMC, the incoming ALARA President. ALARA is hosting the YL International in 2012 so Tina's Presidency will be a busy one. Full story on page 22.

Photo by Christine VK5CTY, Earth courtesy of NASA/Reto Stöckli, design by G Nieman.

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, 'How to write for Amateur Radio' is available from the National Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA National

Office (until stocks are exhausted), at \$8.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Founded 1910

Representing

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Member of the
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Editorial

Peter Freeman VK3KAJ

Winter

Winter has arrived in VK3 – some very cold nights in Churchill in the past few weeks. Snow has fallen on the peaks and the resorts are offering enticements for the skiers to make the trek and spend some dollars. Many farmers are happy that they have received some rain, but most note that they need more to make up for low rainfall levels over past months and years.

We have also been hearing the news of heavy falls further north – too heavy in places! Such is the nature of weather – at times it can be frustrating.

The Winter VHF/UHF Field Day will have been held by the time this issue is printed – I hope all that participated were happy with their efforts. Please do remember to submit your log, even if you do not think that you can win. It is helpful for the Contest Manager to receive as many logs as possible.

And you are also likely to receive at least a certificate acknowledging your participation.

Local activity

At the local club (Eastern Zone Amateur Radio Club Inc.), the committee members have only just a little breathing time after the WIA AGM weekend of activities. After just a few weeks of respite, several of us moved to planning and then running a training and assessment weekend, which will see five candidates on air with their new call signs in the near future.

With that event completed, it is now all hands on deck to ensure that GippsTech 2009 happens as planned on the weekend of July 10, 11 and 12. We are close to finalising the program and the registration information can be found on the club website. Registrations have been coming in slowly, but we are hoping for another successful event.

Calendar of events

I would like to remind all clubs that the WIA website has an on-line Calendar – available under the "News and Events" tab. It is very easy to submit details of your planned event – just click the "Submit a calendar event" link from the calendar page, fill in the form and then submit.

Within a day or so, your event will be listed. This will help other clubs with their planning, so please enter your event as soon as you have decided on a date. This is especially important for events such as hamfests, where clubs are keen to attract attendees from further afield than just the normal club catchment area.

Women in radio

July marks the anniversary for ALARA, so we traditionally have some articles in the July issue with a "Women in radio" focus. Whenever possible, we also include an appropriate photograph on the cover. This year we have Tina VK5TMC, the new President of ALARA and also the co-ordinator of the International YL Meet to be held in Adelaide in 2012.

August – another busy month

I trust that your planning for activities during August is going well.

The Calendar shows two hamfest events on August 2nd – one in WA and the Yarra Valley event, postponed from February due to the Victorian bushfires.

In the latter half of the month we have the Remembrance Day Contest and the ALARA contest. On the same weekend as the RD Contest, many groups will be participating in the International Lighthouse Lightship Weekend – not itself a contest, but that does not mean that you cannot also participate in the RD!

Errata

In the report on the WIA AGM weekend of activities, I made an error in the section concerning the annual WIA dinner. The mystery guest was actually "Dr Ron" VK3EHF from TechTalk Radio. The web address for the TechTalk Radio group is www.techtalkradio.com.au. There are certainly some interesting topics covered during their shows.

I also failed to acknowledge that all the photos included in the report were taken by Robert Broomhead VK3DN. I know that he is not worried about this small omission, but I believe that his contribution should be recognised.

Cheers,
Peter VK3KAJ

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Amateur Radio and Emergency and Community Services

It started at a Board meeting on 2nd March 2008, when the Directors were joined for lunch by Fred Swainston VK3DAC, the head of WIA's Registered training Organisation (RTO), Trainsafe Australia.

Fred agreed to "investigate and advise the best way to create a nationally recognised accreditation to qualify amateurs with an appropriate simple competency to provide emergency communications if the need arises."

Subsequently the Board received and considered a written report from Fred, finally resolving to seek the creation of appropriate competencies. The Board had reached the conclusion that nationally recognised competencies are now necessary to underpin the community service aspects of amateur radio.

At the Open Forum following the Annual General Meeting in May 2009, the Directors announced their intention to develop nationally recognised competencies for radio amateurs engaging in emergency or community service communications.

As National Competency Standards are increasingly required in all workplaces, the emergency services are also looking to competency standards in order to address issues such as "duty of care" and "management of risk".

Without acquiring the competencies expected by the community and the emergency services, radio amateurs will not be seen as an acceptable risk in emergency situations, and so the utilisation of their skills and knowledge may be severely limited.

We must also recognise that today there is an expectation that all activities, including amateur radio, should contribute back to the community in some way. This expectation is reflected in the spectrum management principles that have been adopted by ACMA, where the highest value use of the spectrum, including

value to the community, is relevant.

By strengthening our community involvement, our "social worth", through a set of national competencies in emergency preparedness, we not only provide valuable community assistance, we also help ourselves.

The WIA's RTO, Trainsafe Australia, has completed a review of existing nationally recognised competencies and has submitted a proposal to the WIA Board based on competencies in the existing Public Safety training package. Modifying an existing recognised competency is a much easier and more cost effective road than developing a total package from scratch.

Two competency levels are proposed.

The first level accommodates situations where only manpower is provided to an existing emergency communications facility, out of harm's way, such as occurred in the recent Victorian bushfires.

Training and accreditation to the first level is to be offered to all amateur licence levels, as well as trained but un-licensed persons and operators from other services.

The second level accommodates situations where communications technology is also provided, often in technically dynamic and challenging situations.

Training and accreditation to the second level is to be offered to Standard and Advanced amateur radio licensees, or those holding a higher level communications qualification. We anticipate that for insurance purposes, all persons applying for either qualification will need to be WIA

members.

It is our intention to lever off the WIA's existing training, assessment and accreditation structure, now existing through the WIA's affiliated clubs, for qualifying amateur radio operators to these new competencies.

Having made that decision, the WIA Board is very aware that some clubs will not have the resources, or the inclination, to provide such training and assessment. On the other hand, we do expect that many clubs with an existing emergency services component will be very keen to become involved.

Training and assessment resources will be provided.

The timelines provided to the WIA board for the introduction of this new structure suggest that a suitable training and accreditation system may not be operational until mid next year, that is, mid 2010, at the earliest.

However, because of the importance of meeting this challenge, we intend to adopt interim arrangements that will allow the service to start much earlier, hopefully by December 2009.

These interim arrangements will allow persons who can demonstrate competency to be accredited for a maximum of two (2) years prior to completing the formal training and assessment requirements.

We are entering a new and exciting chapter in the provision of Amateur Radio emergency and community services in Australia.

Phil Wait is the WIA Director responsible for and Coordinator of the WIA's role in relation to emergency communications. This Comment was written by Phil with assistance from Fred Swainston.

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2009 Club Grant Scheme

Innovative ideas are sought for

**Projects to attract new amateurs and
Projects supporting emergency communications**

Applications close 31 July 2009

The rules and application form can be downloaded from

<http://www.wia.org.au/members/affiliation/about/>

Band 135.7 – 137.8 kHz now available to Advanced licensees who apply

ACMA has advised the WIA that any Advanced licensee may now apply to ACMA for a variation of their licence to allow operation on a secondary basis in the band 135.7 – 137.8 kHz.

Amateur operation in that band is subject to a maximum radiated power of 1 Watt (e.i.r.p.).

Application for a variation of licence to allow use on the new LF band should be made on ACMA form R057 (downloadable from the ACMA website) to the Licensing, Allocations and Information Section, National Licensing and Allocation Branch, PO Box 78, Belconnen, ACT 2616 accompanied by the ACMA fee of \$41.

ACMA amended the Australian Radiofrequency Spectrum Plan in January to allow amateur operation on this LF band, allocated to the amateur service at the ITU's WRC in 2007, but has not yet amended the Amateur LCD or the Visiting Amateurs Class Licence to allow operation due, it says, to a lack of resources, and does not see itself being able to further progress the matter before the end of the current year.

The WIA suggested that, as each Advanced amateur licence became due for renewal, the necessary additional condition could be included in the renewed licence, but again ACMA has advised that this would involve additional resources better applied in other directions.

However, ACMA will include the necessary conditions as a variation to each Advanced licensee who applies for a variation of his or her licence to allow operation on this band.

WIA hosts Sydney repeater builders' forum

On Sunday 7th June 2009, the WIA, represented by WIA Director Peter Young VK3MV and Peter Mill VK3ZPP, WIA Repeater and Beacon Coordinator, hosted a forum of amateur repeater builders and maintainers in Sydney.

The forum was organised by the WIA to formulate options for addressing identified interference issues between repeaters along the NSW coastal areas

and the need to explore future spectrum options for new digital technologies.

Not surprisingly, as in the commercial radiocommunications industry, amateur spectrum in the 2 metre VHF band and, to a lesser degree, in the 70 cm UHF band is congested or not available for new technologies.

The forum commenced with a presentation from the two Peters on the issues and how other IARU Regions have tackled similar problems, which stimulated further discussion of the issues. The outcome lead to some positive steps forward for the need to explore better use of CTCSS tone code to protect FM repeaters from unwanted incidental interference, a tentative way forward to address adjacent FM channel interference issues from D-Star mobiles and the development of 12.5 kHz plans for repeaters and simplex channels for wider discussion in the amateur community.

ACMA to close South Australian and Perth Field Offices

At the Senate Estimates hearing on 25 May, the ACMA advised the Senate Committee that it proposes to close the Adelaide and Perth ACMA field offices which are responsible for conducting radio interference investigations in their respective regions. The Australian newspaper reported on the closures.

IARU Region 3 Secretary Resigns

The Directors of IARU R3 have most reluctantly accepted the resignation of Keigo Komuro JA1KB who has retired from the office of secretary after 15 years. The change, effective from 1 June, sees the Assistant Secretary, Jay S. Oka JA1TRC/KH2J become the Secretary of the regional body that has member radio societies in Asia and Oceania.

In an information circular to IARU R3 member societies, Keigo JA1KB said, "I had expressed my wish to resign to the Directors some time ago. I would like to thank all of you for your contribution to IARU Region 3 and your warm support extended to me over that period."

IARU Region 3 Chairman, Michael Owen VK3KI said Keigo came to Region 3 with a professional background in

satellite communications and International Telecommunications Union experience.

"After 16 years as a Director followed by 15 years as Secretary, Keigo has built up an incredible knowledge of the IARU particularly Region 3 and has made a very important contribution to amateur radio," said Michael "The Directors were most reluctant to lose the experience and skills of Keigo and were delighted that he was prepared to accept the position of Special Advisor to the Directors."

Effective from 1 June 2009, Assistant Secretary, Jay S. Oka JA1TRC/KH2J becomes Secretary IARU R3

IARU HF World Championship Contest

The 2009 IARU HF World Championship Contest takes place the second full weekend of July, beginning 1200 UTC Saturday and ending 1200 UTC Sunday (11-12 July 2009). Both Single and Multi operator stations may operate the entire 24-hour period. All licensed amateurs worldwide are eligible to participate in this contest.

The objective of this contest is to contact as many other amateurs, especially IARU member society HQ stations, around the world as possible using the 160, 80, 40, 20, 15 and 10 metre bands.

VK7WI will be on air as an HQ station operating in Zone 59. Jay S. Oka JA1TRC, Secretary, IARU Region 3 is planning to participate in this contest and hopes to contact as many as possible during the contest.

NZART Conference

WIA President Michael Owen VK3KI and WIA Director Peter Young VK3MV were guests of NZART at the Annual Conference held at Hastings, New Zealand on the NZ Queens Birthday weekend of 30 and 31 May 2009.

NZART and WIA take it in turns to host representatives of the other society, and each invites their guest to participate in their Board or Council meetings, and their Annual General meeting.

Both Michael and Peter reported on current Australian developments, and learnt much from the WIA's sister society.

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PC RFI reduction and sound-card interface

Dale Hughes VK1DSH

Computers have changed and enhanced many aspects of amateur radio, making available tools and modes of communication previously unimagined. The processing power available to generate or analyse audio signals via a sound card can replace a large amount of traditional components.

Suitable interfaces to connect the computer to the radio exist and can be purchased or built (see Reference 1, for example), which make use of the 'sound card' modes very easy.

However, laptop and workstation Personal Computers are full of high speed logic and switching power supply circuitry that can generate significant radio frequency interference (RFI) which often makes their use with sensitive receivers difficult. The emphasis of this article is on noise reduction, describing techniques that have been applied to a typical equipment setup. No originality

is claimed for any part of the circuitry.

Application of the following techniques have allowed many hours of happy use of the various 'sound card modes' that are now available. The equipment used was a second hand Dell laptop and an elderly Yaesu FT-707 transceiver.

Noise sources and types

Interference is emitted by the PC in two ways: direct radiation and conduction.

This means that two distinct, but related, approaches may be required to eliminate or reduce problems caused by RFI. Direct radiation of RFI occurs

when the PC radiates radio frequency noise that is picked up by the receiving antenna or directly by the radio because of inadequate screening. Conduction of noise can occur through signal cables (analogue or digital) that connect the PC to the radio, or through mutual power supply connections.

Signals that are conducted by cables may also be re-radiated, so solving the conduction problem may also help reduce radiated noise. In my case it was easy to determine if the noise was conducted or radiated; this was done by listening to the receiver output and

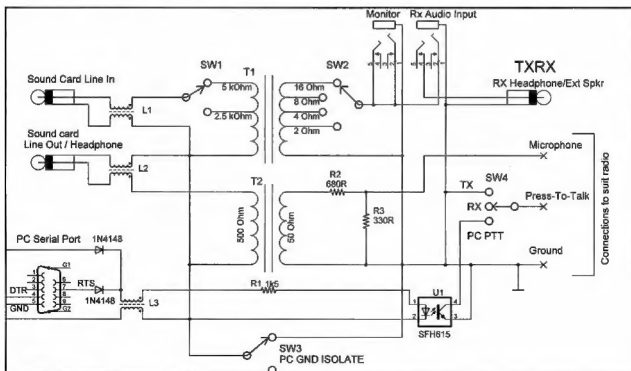


Figure 1: Schematic diagram of interface. Note that the two 1N4148 diodes are mounted in the connector back-shell and that L1, L2 and L3 are common mode chokes made from wrapping the cable through ferrite tubes. The chokes should be as close to the PC as possible.

disconnecting the antenna input. If the noise went away when the antenna was disconnected it was radiated noise, if it did not, it was conducted noise.

The emitted noise appears to be of two types: wide band hash and narrow band 'birdies'; both types are significantly reduced or eliminated if the following steps are taken. Depending on the transmission mode and equipment you are using, one type of noise may be more troublesome than the other.

Reduction of conducted noise: Audio signals

Typical connections between a PC and radio are audio signals from a sound card to the radio's microphone input and speaker (or headphone) output. Data and/or control signals from the computers serial or parallel port may also be used for modulation or Press-To-Talk control.

In both cases a number of techniques can be used to eliminate conducted noise. The solution includes use of galvanic isolation, screening and use of RF chokes. Figure 1 shows the schematic diagram of the interface I use which has

successfully reduced RFI in my setup.

The audio signal lines between the PC and radio are isolated using audio transformers. This means that there is no direct ('metallic' or 'galvanic') coupling between the two units.

The signals are only coupled through magnetic transformer action and this eliminates any common mode signals or coupling of noise through the common earth connection.

Note that the signal earth is isolated, but that a switch (SW3) has been included to connect the common of the radio and PC together if necessary. Chokes are also fitted on the signal lines as they leave the PC; the chokes are 29 mm long ferrite tubes that the audio coaxial cables are wound through. It was possible to wind three or four turns of miniature coaxial cable through the tubes.

Clip-on tubes are also available if it's not possible to fit the connector and cable through the tube. The ferrite tube adds significant inductance on the outside of the cable that reduces any noise that is conducted on the outside of the coax screen.

The ferrite tubes were purchased from

Jaycar and the catalogue number is LF1260. As many as necessary can be added to reduce conducted noise.

Although adequate control of audio signal level through the receive and transmit paths can usually be achieved through the 'audio control panel' of the PC; switches SW1, SW2 and resistors R2 and R3 provide (optional) additional control if required.

Jacks and terminals have been included so that the received and transmitted audio signals may be monitored using headphones if required.

Reduction of conducted noise: Press-To-Talk Control

The PTT control line is isolated by using an opto-coupler. The DTR and RTS lines switch to a positive voltage when the PC needs to switch from receive to transmit; the output transistor is then switched on which pulls the PTT input of the transmitter to ground, enabling the transmitter. Again, no direct ground connection is made between the equipment. Manual control of the PTT

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line is possible via SW4 which can switch between receive and transmit, as well as enabling automatic control from the PC.

Reduction of conducted noise: Power supply

Computer power supplies can be a significant source of noise. In my case the laptop 240 V AC supply was very noisy, so I chose to replace it with a DC-DC converter.

Additional RFI filtering comprising common mode chokes (same as used

above) and filter was added. The DC-DC converter was powered by the station battery supply (24 V DC); this also makes it possible to run the PC for an extended period of time when in the field.

The PC required about 13 volts to run correctly, so a Powerbox supply type PBIH-2412J was used (See Reference 2). This converter has an input voltage range of 19 to 32 volts, with a nominal output voltage of 12 volts at 4.3 amps (50 W); but is adjustable over at least +/- 10%.

The supply was mounted in a diecast box with the additional chokes and filter capacitors fitted to the power supply input and output; polarity protection by means of a Schottky diode (D1) was also included. Diode D2 provides limited protection in the event that the output is connected to another power supply.

Figure 2 shows the schematic diagram of the power supply unit. Note that various versions of the power supply exist with different input and output voltages, so other units may be selected

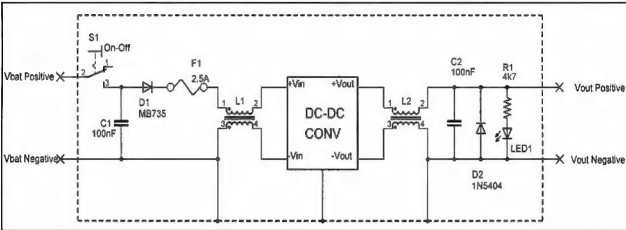


Figure 2: Schematic diagram of power supply.

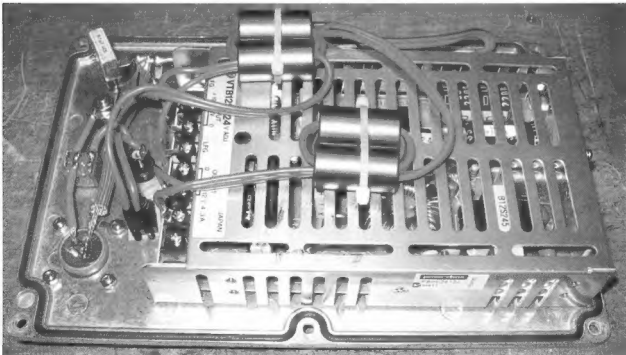


Figure 3: Internal view of power supply showing chokes and DC-DC converter module.

to suit different battery supplies or computers.

Desktop computers will require a different solution. I have found that using good quality line filters and a 1:1 240 V AC isolation transformer can reduce noise emissions from such computers. In this case – for safety – it is imperative that the PC case is earthed. An additional low impedance connection to an earth stake can reduce noise emission from the PC's circuitry.

Reduction of radiated noise

Noise was found to be radiated from all of the signal lines and the installation of chokes on each of the cables eliminated the problem.

The other significant source of noise was found to be the display, either from the display electronics or from the backlight inverter.

Noise emission was significantly

reduced by fitting conductive screens to the back of the display (that is, the top of the laptop) as well as underneath the PC base. I used thin un-etched printed circuit laminate attached using small squares of Velcro tape. Earth straps were soldered to the PCB screens which were then connected to the PC common via a convenient connector.

This significantly reduced RFI radiated by the screen. A final factor to consider is proximity; simply moving the PC further away from the radio may reduce interference.

Components and construction

None of the components used in the interface are critical and components sourced from the junk box, or purchased new can be used.

Transformer T1 is a speaker transformer used in public address installations, the ability to change taps is useful but not

essential; T2 is a small audio transformer with 500 to 50 Ohm windings.

For either T1 or T2, transformers with other turns ratios can be used if they are available; in which case the audio levels to and from the sound card may need adjustment using the PC control panel or by changing the values of R2 and R3.

For example, Jaycar catalogue items MM-2530 or MM-2532 audio output transformers appear suitable and are relatively inexpensive. Other published designs have used 600:600 ohm telephone isolation transformers in similar applications.

Again, possible examples appear in the current Jaycar catalogue. Remember, it is the isolation feature of the transformer's function we are seeking to exploit here rather than any changes to voltage levels, so be prepared to experiment with what you can find.

The opto-coupler is a low current device, but the more common 4N26 device should also work if the value of

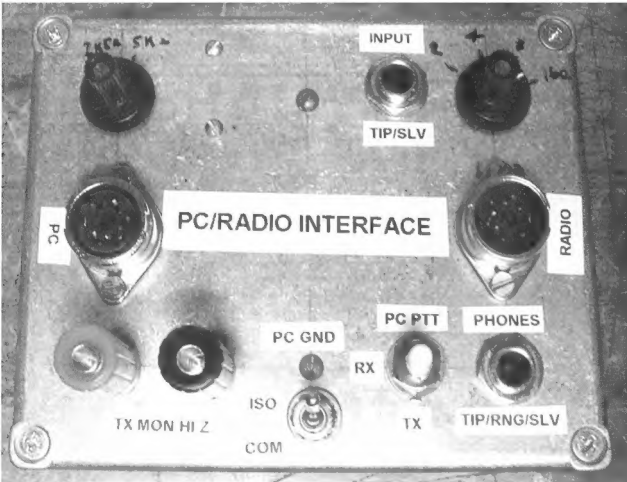


Figure 4: View of PC interface.

R1 is decreased so that more current will flow through the emitter diode.

Screened cable was used for all connections between the PC, interface, power supply and transceiver. For ease of connection, the audio and control connections were made through 5-pin DIN connectors. Figure 4 shows the completed interface unit.

Serial Port Options

The standard RS232 serial port that has been supplied on virtually all computers until recently appears to be becoming obsolete.

Modern laptop PCs, particularly the smaller units that would be especially attractive for field use, frequently only have Universal Serial Bus (USB) ports and no standard serial ports. This makes the PTT interface a bit more difficult.

A number of options exist, including the use of Voice Operated Transmit (VOX) and with care, particularly to avoid unwanted transmissions via a 'hot microphone'; this will work in most circumstances.

Other designs sample the audio output from the PC soundcard and process it to produce a signal that can drive the PTT control; see Reference 3 for details.

A simple solution can be to use an inexpensive USB-to-serial converter cable which converts the USB port to a standard 9-pin serial port, complete with handshaking lines, which can be used to control the transceiver PTT line.

I have tested a number of Windows PSK packages and all have worked well when using my converter cable instead of a standard serial port. I may have been lucky though, as it appears that not all USB-Serial Port adaptors are created equal.

The various internet discussion groups carry lots of messages to the effect that some applications do not work with various brands of converters. It appears that those designed around the Prolific chipset are the least likely to suffer from incompatibility problems.

It may be that our use of the USB port for PTT switching purposes is so rudimentary that it avoids such problems but I have not been able to test a wider range of converters. If you

strike problems in using one in your interface, I suggest you try borrowing a few different brand converters from your friends to see if you can find one that works for you.

Results and conclusion

Noise from the PC has been significantly reduced but not entirely eliminated. However, the remaining noise is at a very low level and does not interfere with the reception of even the weakest signals. The wideband noise emissions from the PC no longer cause any problems and the remaining noise appears to be specific frequencies that can be avoided if necessary.

Some or all of the techniques described above may be necessary depending on the particular installation and severity of the problem. After applying the above in a sequence of steps the effectiveness of each step can be assessed and a decision made about whether more work is required to solve the problem.

Software packages such as Digipan, WinPSK or Winwarbler include a spectral display and this is very useful in observing and assessing the magnitude of the emitted noise as well as providing an excellent way of assessing the effectiveness of mitigation steps you undertake. General purpose spectral analysis programs such as Spectrogram will allow accurate measurements of the frequency and amplitude of noise components which may be helpful in identifying sources of noise.

I wish to thank Bill Maxwell VK7MX for his helpful suggestions during the writing of this article.

References

- Jim Mitrenga N9ART. *A Flexible Digital-Mode Interface*. QST November 2000.
See www.powerbox.com.au for various power supplies.
ARRL Handbook, 2008, Page 19.47, *An Improved Digital Communication Interface*, circuit attributed to Larry Coyle K1QWand first published QST, April 2005.

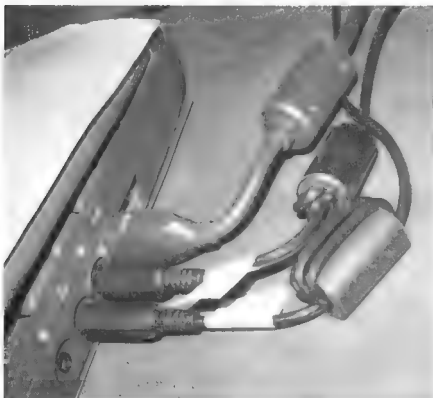


Figure 5: A view of the ferrite chokes and external PC screening.

Over to you

Silent Key - Alan Peake VK2ADB

I was of course very saddened to learn of the death of Alan Peake VK2ADB, whom I had known since working with him in Adelaide in 1989/90. I was heartened by the generous tribute paid by Bill Steptoe in his obituary which you published recently.

I first knew Alan when I arrived as a new migrant in 1989 and worked with him on several 'interesting' projects. I should like to add a couple of anecdotes to Bill's tribute to give people some wider perspective on a man who was, in my opinion, an absolutely superb engineer and whom I am proud to have known as a very good friend.

On one project, the details of which are not relevant, we had the need to collect waveform data at high speed. The problem was that there were only limited tools available: these being a LeCroy 400 Msample/sec digital sampler, with two channel inputs, and an IBM PC/AT clone microcomputer with a clock speed, if I remember correctly, of 20 MHz.

I set about proving that the PC could

interface to the LeCroy using the high level tools available, and this was done relatively straightforwardly. However, it was almost impossible to sample at anything higher than a fraction of the required rate because the slow bus speed of the PC and the even slower high-level code available. I was looking for a 'proper' PC pretty quickly.

I made Alan aware of this problem because I thought that he might have an idea of where we could either source more memory for the sampler or a better computer. However, he pulled a very large rabbit out of his hat when, the following Monday, he arrived at work having re-written the data collection software in 80286 machine code, including a home-brew utility to enable the data to be stored in the extended memory.

This was very good work. What made it even better is that it started with Alan's purchase on the Saturday of a book on 80286 machine code instructions - he had never done anything like this before.

What resulted not only saved the project money but actually worked VERY well. Alan also demonstrated in his quiet manner his tremendous capability to dive into first principles and sort out a problem.

Some years later, Alan took up Amateur Radio and obtained his callsign. The next thing that I heard was that he had built a 'Third Method' SSB transceiver out of spare parts, the sort of project that would daunt many with access to extensive lab facilities, yet Alan, as far as I know, did this in his house in the Snowy Mountains. I am sure that it would have been excellent and I know that he valued the friends that he found in the Amateur community greatly.

I shall remember Alan Peake as a friend who shared a passion for technology without bounds. He would and could tackle almost any problem and do so with enthusiasm and never be knocked back by trivial difficulties.

As several former colleagues have remarked, Alan was a Good Bloke and I am very proud to have known him.

Ian Beeby G8OGJ (formerly VKSZEM)

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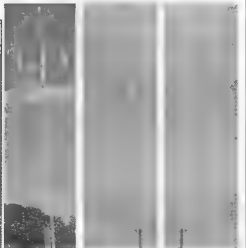
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An active loop receiving antenna for 1.8 - 4 MHz

Drew Diamond VK3XU

In locations where it is impractical to erect a conventional antenna, or where local noise is a problem, a popular alternative is to use a small receiving antenna. Some enthusiasts favour either an un-tuned or broadband voltage-probe (or 'whip'), while others prefer an un-tuned loop, either of these then followed by a broadband amplifier to raise the signal level to near that obtained from a conventional antenna.

A problem with broadband antennas, particularly when operated just above the broadcast band at 1.8 MHz, is that, in addition to wanted signal(s), a host of powerful, unwanted, out-of-band signals are also applied to the receiver's input. If the receiver's front-end signal handling ability (inter-modulation and pre-selectivity) is less than very good, then various undesirable effects will almost certainly occur.

If the antenna is resonated at the receiving frequency, however, the natural selectivity of the circuit will greatly attenuate the strength of out-of-band signals before they are presented to the front-end.

Apart from positioning, the whip offers little discrimination against locally generated noise, whereas a tuned loop can usually be oriented to obtain a worthwhile, and often remarkable, improvement in signal-to-noise ratio (Reference 1).

Offered here are details of a simple,

tuned, balanced loop antenna for sensitive listening between about 1.75 and 4 MHz. Internally generated noise is low, thus allowing sub-microvolt signals to be heard.

Circuit

A seven-turn, 280 mm square, 'pan-cake' coil of 46 micro-Henrys is resonated by a two-gang broadcast type variable capacitor between (about) 1.75 and 4 MHz (it was found by experiment that this loop yields a measurably higher 'Q', and better sensitivity than a ferrite-rod/loop-stick).

The frame of the capacitor is connected to chassis ground, thus forming a balanced tuned circuit which ensures that the loop is only responsive to the magnetic component of the incoming wave (simple unbalanced circuits may respond slightly to the electric component also, thus skewing the null in direction-finding applications).

For an electrically (and physically)

small antenna, a substantial amount of amplification is required to raise the signal level to a value similar to that obtained from a 'full-size' one. Initial pre-amplification is provided by a balanced (or push-pull) pair of ordinary 2N5484 FETs (Figure 1).

The job of interfacing between the drains of the FETs, and the unbalanced coax line to the receiver's input, is done with a 'long-tail' pair differential amplifier (References 2 and 3).

The discrete component configuration shown is modelled upon the classic CA3028 chip (unfortunately, no longer readily available), which provides further robust RF amplification of incoming signal(s). Their collectors are coupled to the receiver's input by use of a broad-band transformer, whose bifilar wound (p)rimarily provides a balanced load to the collectors of the long-tail pair. Signal is extracted via a 4-turn link (s)secondary winding.

continued over page

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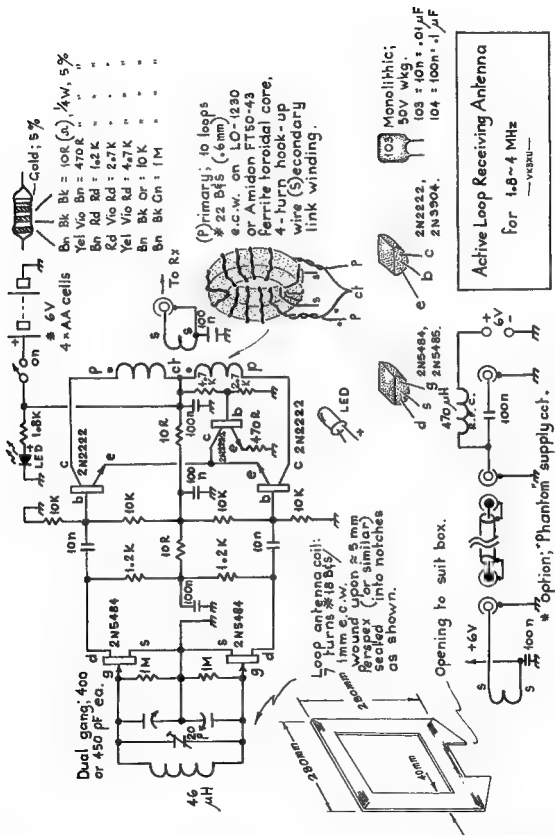


Fig. 1.

Figure 1: Schematic of the active loop receiving antenna for 1.8 - 4 MHz.

the drill until you have about three twists per 10 mm. Now give the drill a firm pull to 'set' the bifilar pair. Carefully wind the pair on to a Jaycar LO-1230, or an Amidon FT50-43 toroid - about 10 loops should fit nicely, leaving a gap for the four-turn hook-up wire link (s)secondary winding.

With a multimeter set to read ohms, identify the two (p)primary windings, and then connect the end of one to the start (dot) of the other, to form the centre tap (ct).

The 6 V battery of four AA cells may be accommodated in a holder, such as the Jaycar PH-9204. It can be attached to the lower outside surface of the box with small screws and nuts, or simply fixed there with hot-melt glue. The LED is fitted into the front panel to serve as an 'on' and battery condition indicator.

Operation

Inspect your wiring and soldering for quality and accuracy. Prove that the FETs and transistors are correctly fitted, and that your battery of AA cells is properly installed.

Connect the amplifier output to the receiver input using any reasonable length of 50 ohm coax cable. Tune the receiver to 4 MHz. Set the antenna's variable capacitor near minimum

capacity. Switch on, and carefully adjust the 20 pF trimmer for a peak in noise/signals. Check that the antenna can be peaked at any frequency between 1.8 and 4 MHz. If conditions are fair to good, the set-up should sound quite lively. Any

local noise/interfering signals should be reducible by careful rotation of the loop's plane.

My loop has been tested in various typical locations (some of them quite noisy) during our travels. It provides

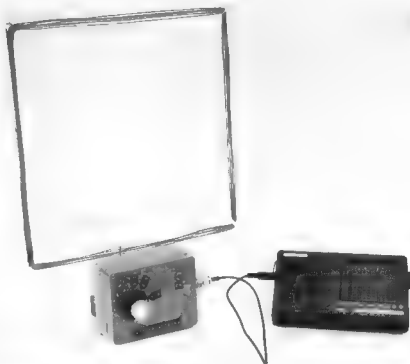


Photo 1: The active loop receiving antenna for 1.8 - 4 MHz in action.

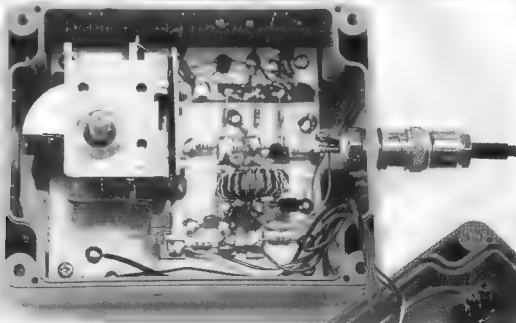


Photo 2. A view of the components mounted in the plastic box on the 'paddyboard' with the box lid removed.

(perhaps surprisingly) good performance indoors.

At a distance from electric power lines and appliances, however, a portable receiver/loop combo gives excellent results. For receivers that have a DX/local switch (such as the popular Sangean and Degen sets), it should be found that the DX position is seldom required (thus giving better strong-signal handling).

As long as a reasonable separation is maintained between a transmitting antenna and loop, no damage should be caused to the amplifier or receiver. However, an accidental transmission into the output of the device would probably damage the amplifier.

Counter-intuitively, perhaps, the null is through the axis of the loop (that is, when the loop is 'broad-side on', see Reference 1).

A suggested circuit is included in Figure 1 to provide 'phantom' power for remote operation. The loop must not be allowed to get wet. For permanent use outdoors, therefore, it is suggested that the antenna be housed inside an inverted plastic bucket, or similar contrivance.

Parts

All the ordinary components are available from our usual parts suppliers, including Altronics, Electronic World, Jaycar, Rockby and Semtronics. Sources for the ABS Box, toroidal core and variable capacitor are mentioned in **Construction** above.

You may well find (as is the case in nearby Ringwood) that off-cuts of Perspex/acrylic sheet are available from the scrap-box of your local plastic sign

maker, free for the asking.

I am not in the parts business. Nevertheless, if, after earnest efforts, one or two items remain elusive, do phone me on (03) 9722 1620, or drop me a line, as it may well be that I have spares on hand.

References and Further Reading

1. "Small Loop Receiving Antennas"; Joseph Carr, *Electronics World*, November 2000.

2. *The Art of Electronics*, 2nd edition; pp 98 ~ 104, Horowitz & Hill, Cambridge University Press.

3. *Experimental Methods in RF Design*; pp 2.16 ~ 2.18 (excellent), Wes Hayward et al, ARRL.

4. "'Paddyboard' Circuit Construction - Revised", *Amateur Radio*, May 2005

Photos by Andrew Diamond

BT



Photo 3: One corner of the loop, showing turns wound side by side in the notch.



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A transverter for 2.4 GHz

Andrew Davis VK1DA

A transverter for the 2.4 GHz band was built in the week prior to the 2008 Spring VHF/UHF Field Day. Its design was based on separate modules for the functions of mixers, filters and amplifiers, standard kit modules and surplus coaxial cables and connectors.

Introduction

This article describes how I came to build a transverter for 2.4 GHz in the week prior to the 2008 VHF/UHF Field Day contest. It uses a design approach that could be adapted for any microwave band.

Why did I even consider this project? The increasing interest in microwave bands in the VK1 area and the high scoring rate for microwave bands meant that if I added 2.4 GHz to my Field Day station, I would gain an extra band, earn extra points in my field day log and, I hoped, inch closer to Doug VK4OE's score.

I did not expect to work long distances with a one to two watt signal, I just wanted to make a handful of contacts on an extra band.

Components and modules

Some useful components for this type of project had been purchased during the previous year, some found via the advertising and auction website eBay.

com.au. Items purchased included two bandpass filters centred on about 2.3 GHz and a 10 MHz oven-controlled crystal oscillator. These oscillators can be used as a frequency reference for a microwave Phase Locked Oscillator (PLO).

I had also purchased from *MiniKits* a kit for a transverter sequencer for controlling a multistage transverter and a kit for a microwave Transmit/Receive (T/R) antenna relay using a small surface mount relay, suitable for power levels up to 10 watts at 2.4 GHz.

Ted Garnett VK1BL had built some amplifiers using the *MiniKits* experimenter boards and low cost Monolithic Microwave Integrated Circuits (MMICs), for the receiver RF amplifier and low level transmitter amplifiers.

While researching PLOs Ted had also found on eBay a Phase Locked Oscillator (PLO) that could be ordered for a variety of frequencies including 2256 MHz. This frequency is required for the Local Oscillator (LO) in a transverter giving a 2400-2404 MHz range when used with a 144-148 MHz transceiver as the

intermediate frequency (IF).

He had also experimented with the one to two watt output stages of Comwave mixer/amp/power amp modules also being sold via eBay. These components had proven to work well and were ready for use in a project.

Between us we had the main components needed for a 2.4 GHz transverter. The question was whether those components could be transformed into a working unit and when it would be done. Ideally it should be completed in time for the coming summer Field Days, the first being the Spring VHF/UHF Field Day in mid November 2008.

In August 2008 there seemed to be plenty of time and other things took priority. However early in November the imminent VHF/UHF Field Day focussed my attention more closely and I decided to try to build something for use during that event.

The design

Figure 1 shows the block diagram of the transverter.

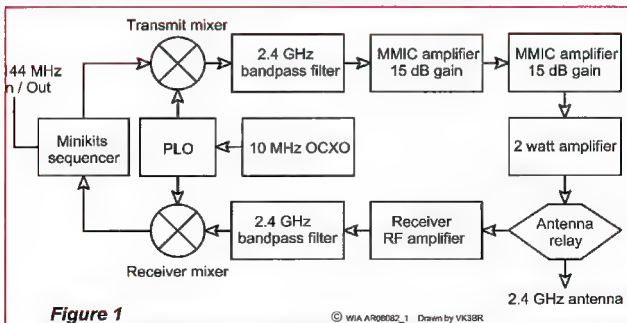


Figure 1

© WIA AR08082_1 Drawn by VK3BR

Figure 1: The 2.4 GHz transverter block diagram.

The key to the frequency conversion is the local oscillator signal, provided by a PLO producing a 2256 MHz signal for both mixers. This device is quite small, measuring about 25 mm by 15 mm and produces a signal that is proportionally as stable as the 10 MHz reference signal from the OCXO.

This method of producing the LO signal is significantly simpler than using a crystal oscillator and multiplying it many times to the final desired frequency, with accompanying filters and amplifiers.

As can be seen from the photos at Photos 1 and 2, using a preassembled PLO makes the LO part of the project physically very simple with only a small PCB to install in a shielded box and connect input, output and DC supply.

The LO signal of 2256 MHz combined with the FT-290R IF radio to provide a 4 MHz range, from 2400 to 2404 MHz. The frequency used for local contacts was 2403.1 MHz, which was obtained by tuning the FT-290R to 147.1 MHz. This is in the FM part of the 2 m band, but there are no FM repeaters on that frequency in my normal operating areas.

The output of the 10 MHz OCXO was higher than the rated input level of the PLO, so an attenuator was built from ordinary carbon film resistors and added to the output pins on the OCXO. The output of the PLO was a bit higher than desired for the mixers (+7 dBm), so the splitter providing the LO to the two mixers was designed to attenuate the PLO output by about 5 dB.

The transmit driver amplifiers were built by Ted using two *MiniKits* experimenter boards

The output level from the mixer, with +7 dBm LO and about 0 dBm IF drive on 144 MHz, was about -7 dBm and a further 4 to 5 dB was lost in the filter. The +15 dBm available for the power amplifier was higher than needed. The drive level could have been reduced by inserting 6 to 10 dB of attenuation between the driver and power amplifiers.

An alternative was to reduce the IF drive to the mixer using the level control on the sequencer, which was the approach I took. I adjusted the 144 MHz drive level to the point where output did not increase, took that as the compression point and backed the drive off a smidgeon.

The FT-290R was set to low power which is rated at 300 mW output. This is still far more than the transverter requires and some simplification could be achieved by changing the 300 mW setting to about 10 mW.

The receiver RF amplifier stage was also built by Ted using the MGA86576 MMIC. On the test bench a -120 dBm signal produced good audible signals in the FT-290R and this was considered adequate sensitivity given that the output power of the transmitter was only one to two watts. There was no need to have a moonbounce level of receiver performance with a low power transmitter.

The low level amplifiers and the receiver RF amplifier all worked best at nine volts so the sequencer was supplied nine volts from a subregulator. Precision voltage regulation was not really required for either the sequencer or the RF amplifier but is readily provided by a three terminal regulator. I decided to use a Jaycar general purpose adjustable regulator board (purchased as a kit consisting of a PCB and about 10 components).

As the relay board was very light it was not mounted separately onto the case but merely connected to the three semi-rigid cables and left floating in mid air. The board did not appear to move at all when mounted on the cables and bolting

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it to a panel would have complicated and lengthened the connections. The cables are stiff enough to provide more than enough strength and stability for this application.

Transmit/Receive changeover switching is triggered by the FT-290R, which puts a +5 V DC voltage onto the antenna output when in transmit mode, as well as the RF.

This DC voltage triggers the sequencer to change from receive to transmit mode, first turning off the receiver RF amplifier, then changing the antenna relay, then enabling the final amplifier, then switching power to the transmitter amplifier stages and switching the IF signal over to the transmit mixer.

The *MiniKits* sequencer also caters for the DC voltage switching used by the Icom IC-202 series, which work the opposite way, the DC voltage appearing on receive and going to zero on transmit. The sequencer also has an RF actuated input which operates whichever of the DC methods is in use.

A sequencer is probably overkill for a low powered transverter but I wanted, in the future, to cater for increased output power from a different final amplifier.

The filters were originally tuned for about 2.3 GHz but were readily re-tuned

with the aid of a microwave sweeper, tuning first for an acceptable waveform on a sweep display and then fine tuning for maximum return loss (or minimum SWR) with a 50 ohm load. After this tuning no further adjustments were made to them.

The final layout of the transverter can be seen in Photo 2, showing the remaining components other than the OCXO and PLO shown in Photo 1. Most of the RF connections are made using semirigid coaxial cables with SMA male connectors, which are available in various lengths as surplus items.

Timing

The project was started on the Saturday a week before the Field Day. Ted checked the PLO and mixer, looking for the optimum IF drive level into the mixer and checking on the OCXO drive level into the PLO. A test of the receiver mixer was also made.

Assembly of the sequencer commenced on the next afternoon and was completed after several sessions of about one hour each. Early in the week I visited Jaycar and purchased a cabinet, some hardware and the sub-regulator kit.

By Thursday night prior to the Field Day I had assembled the sequencer and regulator, mounted all modules into the

cabinet and had installed the RF sockets and a DC connector. I had not yet tested the sequencer, which caused concern the next day.

I took the partly assembled box back to Ted's place on Thursday night and by 12:30 am all remaining modules (OCXO, PLO, power amplifier, bias supply board) were mounted and ready for testing. We were able to check out the receiver sensitivity but the DC switching for the transmitter stages had not yet been completed.

The next morning I spent an hour completing DC wiring from the sequencer to relays and the power amplifier bias supply. Finally it was transmitter test time and I first tested the sequencer to check that all DC switching was working correctly. At that point I found the sequencer was not responding to the incoming DC voltage from the FT-290R. I had to stop and get ready for the day's work, but having reached this point I did not want to drop the project just because of a few components or soldered connections on the sequencer.

At lunch time I went home for an hour and commenced tracing DC voltages on the sequencer board. After fixing two non-soldered joints, the sequencer was operating correctly and I could measure

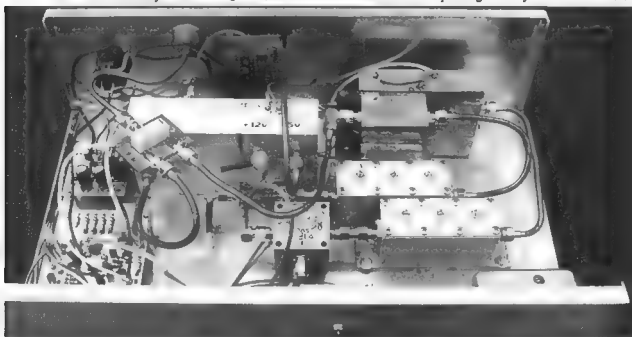


Photo 1: The main components of the transverter. The sequencer and subregulator are on the far left, the two mixers are shown attached to the 2.4 GHz filters and the low level amplifiers to the rear on the right. The transmitter power amplifier is in the aluminium box just under the small circuit board suspended on the coaxial cables, which contains only the antenna relay. The -5 V supply is on a veroboard mounted on the rear panel. The connectors on the rear panel are the DC input, the 2.4 GHz antenna connector and the 144 MHz input.

all the output voltages being enabled by the sequencer when the FT-290 was keyed up.

I connected a HP432A power meter (another recent acquisition) to the antenna socket of the transverter via 30 dB of attenuators. The 144 MHz input from the FT-290R was connected via a 5 metre length of RG-58 coax, the intended configuration for the Field Day.

With the FT-290R in SSB mode, I pressed the TX button and heard all relays switch over, then spoke a word or two into the mike and saw the power meter move. This looked good, so I switched the FT-290R to a constant carrier and adjusted the drive level from the sequencer to the TX mixer.

Due to the excessive gain in the TX amplifier chain the output from the sequencer could be set at just above minimum for an indicated -4 dBm on the power meter. Adding the 30 dB of the attenuator this indicated an output power of $+34$ dBm or about 2.5 watts.

I knew that the 20 dB attenuator was not necessarily accurate at 2.4 GHz. It had BNC connectors and was unlikely to be accurate at that frequency. However I knew there was RF power coming out of the box and I was then able to continue preparations for the Field Day.

The outcome

The transverter performed well and gave me some valuable points during the Field Day. I have published some photos from the field day, at <http://www.flickr.com/photos/exposite/>

Configuration

The transverter was deliberately designed to be operated remotely and supplied with only 13.8 V DC and the 144 MHz drive signal from the FT-290R IF radio. This permits a short feedline from the antenna to the transverter, minimising losses in the feedline.

Although only 4 metres of LDF440 cable was used, even good quality cable has measurable losses at these frequencies so it is important to minimise losses on both transmit and receive.

The feedline from the IF radio was operating at a much lower frequency of 144 MHz so could be much longer, even in relatively lossy cable like RG-58, as any losses are readily made up for in the transverter. In future Field Days I plan to mount the transverter on the mast just below the antenna, to reduce losses further.

Future development

There are a few potential alternatives and changes to the design of this transverter

Reduce the module and connector count by sharing one mixer and filter between the transmit and receive signal paths. This would require a diplexer for the IF and 2.4 GHz signals. An article by Paul Wade W1GHZ (Reference 2) showed how this can be simply achieved using resistors to isolate the signal paths sufficiently. The 3 dB loss is easily made up by the gain available from MMICs, the "BC108s of microwaves". This would make the transverter even simpler, with only one mixer and one filter required.

The power amplifier uses a MOSFET that will be damaged if the drain supply is connected in the absence of the gate bias supply. The sequencer has a suitable input that could lock the transverter in receive mode if the bias is not present.

As noted above, the multi stage sequencer is probably not necessary for a low power transverter. A two relay system such as the simple sequencer design by G3SEK would be adequate. The only really important delay is to the IF drive on transmit, to ensure no relay

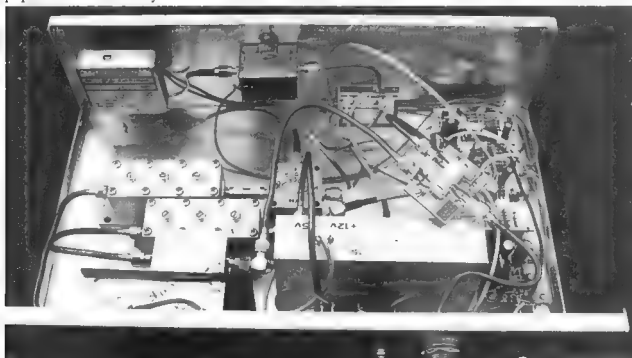


Photo 2: A view of the transverter from the rear, showing the 10 MHz reference oscillator on the far left and the phase locked oscillator board in its small brass enclosure. The PCB next to the PLO is simply a splitter with some attenuation, with outputs to both mixers.

other than the low level input relay is ever hot-switching.

No polarity protection was installed in the original transverter. The 9 V regulator board does have a series diode, so the only components at risk are those not switched by the sequencer and running from the 13.8 V supply. However this is not a sensible risk to take with equipment that will be assembled and connected in the field. With a fuse in the power lead, a reversed diode across the DC input connector is all that is required. This avoids the loss of voltage (typically 0.6 V) across a series diode. For low power equipment the simplest protection method is a bridge rectifier on the DC input.

With a stable 10 MHz oscillator in this transverter, it is feasible to use the same signal to stabilise other similar transverters. The relative frequency error would be predictable. For more demanding accuracy and stability, the OCKO can be replaced by a GPS-stabilised 10 MHz source. There is enough room in this transverter box for a GPS receiver.

The sequencer could also be shared between multiple transverters with outputs switched appropriately.

Alternatives

Alternatives for the transmitter power amplifier include other surplus amplifiers ranging from 10 watt to 25 watt levels. Some are being offered by Australian sellers on eBay.au.

PyroJoseph on US eBay offers a range of modules including 25 watt amplifiers. If you want to start at the 2 watt power level, *MiniKits* offers a kit for a 2 watt amplifier for this band.

For the PLO there are alternatives becoming available. Andy Sayers VK2AES described a design for a series of PLO boards at GippsTech in July 2008, for a variety of frequencies between one and 10 GHz. I plan to use those boards for future microwave projects. Watch for an announcement about those boards. The PLO with acceptable phase noise seems to be the critical part of any microwave transverter and finding a suitable source solves the majority of the technical problems for the higher bands.

The bandpass filters I used were disposals items from multimedia distribution systems equipment or similar. However experimentation by Ted VK1BL with home made interdigital filters has shown that quite acceptable results can be obtained provided they are assembled

with care and they are tuned correctly.

For higher power levels it would probably be advisable to use additional filtering before the power amplifier stage to ensure spurious outputs are kept to an acceptable level.

The amplifiers are "linear" so harmonic output and intermodulation distortion should be very low. (In addition, the second and higher harmonics may be out of the amplifying device's operating range so its ability to generate harmonics is presumably limited.) Nevertheless most commercial equipment on these bands have filters everywhere because microwave gear is typically co-located with other equipment and clean outputs are essential.

If the same filtering is applied to the receiver then the receiver will be equally well protected from image responses and intermodulation products in its mixer.

Parts sources

10 MHz OCKO. Various types are on eBay. I bought a Trimble OCKO from China for about AU\$70 posted.

PLO with output on 2256 MHz. Source: *eBay.com*.

Mixers. One of the mixers was built on a simple board using a standard microwave double-balanced mixer rated for this frequency, with SMA connectors soldered to the board. The mixer has several tiny transformers and a matched set of microwave diodes on a chip. The other mixer was a commercial microwave mixer which Ted loaned for this project.

Filters. I bought these surplus filters from *Garry Nosworthy* at Nowra, via eBay. I do not know if he has more.

MMICs and experimenter boards for receiver and transmitter amplifiers: – *MiniKits*.

RF amp for receiver: MGA86576 – *MiniKits*.

Connectors: panel mount N socket with semi-rigid cable and SMA plug: I purchased a few of these from *RF Resale* (Alan Devlin, VK3XPD) at GippsTech.

Semi-rigid cables with SMA connectors: purchased from Alan Devlin.

Sequencer board and microwave relay kits – *MiniKits*.

9 V adjustable regulator board: *Jaycar*, (this could be built using any suitable regulator chip mounted on perf board, veroboard, blank PCB, "paddyboard" style or even tagstrips. Only required if the amplifiers cannot be run from the (typically) 13.8 V DC supply.

Hardware: case, standoff's, nuts and bolts: *Jaycar*.

Building gear for the microwave bands

A key to success in projects like this is being able to get components and modules checked and measured so that you know that outputs are on the right frequency, levels are correct, and so on. Getting access to good test equipment makes this project much easier and results come quicker.

I had never built any equipment for microwave bands before so this was a new experience for me. However this project showed me that it was quite feasible once I had the right components and some help with testing and alignment. I plan to build similar equipment for other microwave bands.

Summary

The 2.4 GHz transverter presented here was designed and built using proven available modules, using surplus components where possible. No circuit diagram is included, as the components available to other builders may be different. Hopefully, publishing the project in this way will encourage others to have a go at getting some equipment running on the microwave bands. My professional work is in computing and I have no training in RF or microwaves, so if I can do it, so can you.

The transverter did what I wanted it to do. I made about 12 contacts with two local stations during the Field Day, with the pleasure of using equipment I had largely built myself. This was very satisfying.

This was a typical amateur radio project, thrown together at the last minute, with a very rewarding outcome.

Acknowledgements

This project succeeded only due to the support I received from Ted Garnett VK1BL. Thank you very much, Ted!

References

1. *MiniKits* is run by Mark Kilmier VK5EME in Adelaide. Mark publishes a catalogue of kits and components at affordable prices and provides an excellent mail order service. See www.minikits.com.au

2. Paul Wade W1GHZ, 2008, *Microwave Multiband Transverters for the Rover*, see <http://www.w1ghz.org/>

3. *eBay.au*, see www.ebay.com.au on the web. **ar**

Maatsuyker Island IOTA

OC-233 – and a ‘face to face net’

Roger Nichols VK7ARN

Tad VK2LNX and Suzanne VK2FSMJ completed their three month term as caretakers on Maatsuyker Island early in February.

Maatsuyker is 10 kilometres off the southern coast of Tasmania and its southern tip is the site of Australia's most southern lighthouse. Maatsuyker is IOTA OC-233.

Prior to Tad and Suzanne's departure from VK2, WIA club coordinator Ted VK2ARA asked WICEN Tasmania (South) if they could provide support, if required. As it turned out, all that was required was to arrange an air drop of essential components. Negotiations around the extra helicopter fuel necessitated by the additional load, comprising a couple of resistors, were quickly handled by Stu VK7NXX and Tad had his resistors on the next chopper flight.

Once Tad and Suzy had established themselves and set up their amateur station, WICEN held a weekly 'Maatsuyker net' with them. Contact was made each Thursday evening on 80 metres, missing only one when Tad was unable to get his wire back in the sky during a particularly strong and extended roaring of the Forties.

Hopefully, Tad and Suzy will tell their own story in a coming edition of *Amateur Radio* magazine.

In order to have a 'face to face net' before their return to the even bigger

island to the north of the big island, WICEN arranged to meet for an afternoon tea in Margate, south of Hobart, for a final QRN free sked.



Photo 1: The 'face to face net' – L-R: Scott VK7HSE, Roger VK7ARN, Peter VK7TPE, Stu VK7NXX, Suzy VK2FSMJ and Tad VK2LNX.



Photo 2: Suzy VK2FSMJ and Tad VK2LNX. No! Suzy is not wearing a Tasmanian Tiger skin.



On a rare rain-free day, the Lighthouse at Maatsuyker Island, over-looking the Needles
(Photo Jeff Jennings LoA)

Women in Radio cover story

Christine Taylor VK5CTY

New ALARA President: Tina VK5TMC

Tina is the new President of ALARA. She is also the co-ordinator of the Australian YL International Meet to be held in Adelaide in 2012, so it is time we knew a little about her.

Tina was born not far from Seattle, Washington State. She was the only girl in a family of five but insists that she was not spoiled!

Tina trained as a teacher in the US and then decided to come to Australia as an exchange teacher, to experience a different country. She decided she liked the climate and the people in Australia so she has only been back to the States for visits since then.

Her links with her family are strong so she, and now also her OM Robert VK5ZHW, go to the US every two or three years. They have now seen many different parts of the country but hope one day to spend about six months there to really see places they have only visited so far. Currently they are in the US, and have included the Dayton Hamvention. We will hear more about that in the future, in the columns of AR and in the ALARA newsletter.

Tina followed her OM Robert into amateur radio. Robert had trained as an electronic technician as a young man but Tina had no prior appreciation of amateur radio until Robert got his licence in about 1990.

He used to talk to her about the classes he was attending, and through the classes and the radio he met a number of YL amateurs so Tina decided to go to these classes herself.

She attended the classes run by Geoff Taylor VK5TY in 1993 and passed her exam in May the next year. She was immediately also joined up as a member of ALARA. As part of a very active group of YLs in VK5, Tina has taken an active part in many of the events of



New ALARA President Tina flanked by Vice-President Lesley VK5HLS and 2nd Vice-President Shirley VK5YL.

ALARA and AHARS, the club to which most of the YLs in VK5 belong.

Until recently neither Tina nor Robert had been on the HF bands though they were quite well known on VHF, but now that they have an aerial up and also have enjoyed operating portable in the John Moyle Memorial Field Days, they are heard more often.

Tina taught mathematics and computing at several Adelaide schools, notably at Aberfoyle Park and Mount Barker High Schools. She has now retired and is discovering what else to do with her time!!

She will be an excellent President of ALARA and Co-ordinator of the YL International and, although the event is not until 2012 she has already set up a website www.ylinternational2012.110mb.com. At Dayton she made a presentation about the Meet at the YL Forum and met a number of the Buckeyes Belles etc, there.

At the moment the website is very primitive but it is one that will be worth keeping an eye on if you are at all interested in attending and having a chance to meet YLs and their OMs from around the world. Yes OMs are definitely part of the YL International Meets. They enjoy the activities as much as the YLs do.

As President of ALARA Tina has a number of new faces on her committee and she will be ably supported by her Vice-President Lesley VK5HLS and 2nd Vice-President Shirley VK5YL, both of whom have been members of ALARA for a number of years and are part of the active group in Adelaide who meet once a month for lunch. Already they and the others at the lunches are exchanging ideas for 2012, so Tina will have plenty of help.

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A Wonderful Old Timer

Jim Linton VK3PC

Mavis Stafford VK3KS – 70 Years an Amateur

Grand lady operator, Mavis Stafford VK3KS has been a radio amateur for 70 years and a luncheon on the first weekend of June in Melbourne was held in her honour.

The occasion was organised by the Australian Ladies Amateur Radio Association, ALARA, which she has actively supported since its formation in 1975.

The Mavis story begins in a small farming settlement of Lallat North in Victoria's Wimmera district when a school teacher Ivor VK3XB boarded at her parent's home.

The young man set up a battery powered rig in his lodgings much to the interest of Mavis' brother Artie who started studying for his licence, but soon had to leave the farm to find work.

Mavis at this time had quietly learnt the Morse code and with some study under Ivor's guidance passed her licence test on 30 May 1939 to be issued the callsign VK3KS on 6 June in that year. Within three months she had made 110 contacts using a crystal controlled rig with 3 watts output, before World War II brought an end to amateur radio activity.

In 1943 Mavis married Ivor Stafford. With the resumption of amateur radio after the war the couple continued to share the enjoyment of the hobby, both being fine CW operators who also enjoyed Phone.

Eventually they relocated to Box Hill in Melbourne's eastern suburbs and were proud to have a shared OM and XYL QSL card. Ivor was a fine gentleman and his contributions included that of being the WIA Victoria Outwards QSL Officer, ably assisted by Mavis. He passed away in 1999.

Mavis has won a large number of contest awards. With Ivor they were stalwarts of the BERU Commonwealth Contest over decades. In 1966 Mavis became one of the few ladies in the invitation-only First Class CW Operators' Club. She was one of the early members of ALARA that helped establish the organisation which encourages females

to become radio amateurs. Many of its new members in the past three years have entered the hobby through the Foundation Licence.

As the ALARA Historian, and with assistance from Ivor, she produced the organisation's history for 1975-89. Mavis held many an ALARA meeting at the Stafford home and she was also the Award Custodian. ALARA bestowed on her Honorary Life Membership in 1983.

Mavis was pleased to see so many friends and newcomers to amateur radio at the luncheon. WIA President Michael Owen VK3KI praised her contributions and presented her with a framed WIA President's Commendation. ALARA Vice President Marilyn Syme VK3DMS talked about the voluntary work of Mavis and her support

of others, before presenting an ALARA plaque marking her 70th anniversary.

See also the photo on the Inside Front Cover of this issue.

Photos by Robert Broomhead VK3DN.



Jean VK3VIP and Mavis VK3KS admiring the designs on the celebratory cake, or is it that they just have designs on the cake



Jean VK3VIP, Mavis VK3KS, Marilyn VK3DMS and Monique VK3FWPZ. From a recent licensee to one with 70 years on air, it looks as if ALARA will continue to thrive

Silent Key

Bill Sadler VK3AMH

Late on the evening of 20th December 2008 Bill Sadler VK3AMH passed away.

Just two months prior Bill and Jan had made the trip from Warrnambool, their last QTH, to Ballarat for the HamFest to catch up with his many ham friends, in what the family recognized may be his last outing to a ham event.

Bill first developed his life long interest in amateur radio as a student in the mid 1940s following the seeds of interest being planted by a favourite uncle during his childhood.

Bill's professional career was electrical engineering, working at the then State Electricity Commission of Victoria. When being recruited as a graduate engineer, Bill was offered the chance to work in the communications branch but declined in favour of being a distribution engineer and reserving his passion for radio as his hobby rather than making it his work.

Like many of his era Bill had a desire to learn, experiment and design his own gear, building transceivers, PAs, towers, power supplies and antennas for the multitude of bands he liked to operate.

For many years Ballarat was home base for Bill and his family and was widely known for the station that he built with ham partner John Lewis VK3HW. Over the years the Ballarat shack was a local landmark, with many visitors landing on the doorstep of the family home enquiring "Is this BTV-6".

The station underwent many transitions and upgrades over the 40 odd years they operated together with the finale of their creative endeavours being 45 m of ex-SEC transmission tower decked out with three massive log periodic antennas that Bill and John designed and manufactured themselves in the workshop. The small one, with a 6.1 m boom covered 50 to 54 MHz, the next one at 15.5 m covered 14 to 30 MHz and the largest, being 21.5 m long, dealt with 7 to 10 MHz.

Later, upon retiring to Nagambie, Bill was to design and build four 15 m towers for a rhombic antenna that covered about 2 hectares.

Throughout his amateur radio career Bill supported the community with

his hobby, sharing his passion for radio with Scouting groups, providing communications in emergencies to the CFA during bushfires; contacts to Mexico during a severe earthquake and regular scheds into Antarctica when official communications were primitive or unreliable. Having lived overseas in the late 50s and relying on amateur radio friends in Canada and North America to set up scheds through John for Jan and Bill's parents, the favours were returned for many visitors throughout the years who visited and used the power of the station to push a strong, clear signal into North America and Europe.

Bill also had the time to share his passion with many succeeding generations of aspiring hams giving advice, guidance and being a role model.

With his final retirement move to Warrnambool, and a city block, the high powered HF gear was retired and Bill embarked upon new fields of endeavour, developing an interest in the 5 and 10 GHz amateur microwave bands and forming strong friendships with Russell VK3ZQB, Colin VK5DK and Alan VK3XPD as they collaborated in the construction of microwave gear. This new sphere of interest culminated in the mother of all field trips when Jan and Bill took off to North Queensland in 2004 to eventually meet up with Colin, Alan and Russell and jointly set about establishing some VK4 and VK2 long distance records for the 5, 10 & 24 GHz bands.

Right up until the last few months Bill was still active and creative, building and testing more antennas and microwave PAs.

And so the antenna is parked into the wind, the brake locked and

the power to the rig switched off the last time after a full and rewarding life and over 60 years of commitment and dedication to his passion and hobby. Dad, VK3 America Mexico Honolulu, rest in peace.

Murray Sadler

ar



The 45 metre ex-SEC tower with the massive log periodic antennae erected by Bill VK3AMH and John VK3HW

The 'Hentenna' for six metres

Andy Willis VK5LA

Do you have a transceiver that is capable of operating on the 50 MHz amateur band, but do not operate there because you do not have a suitable antenna? This interesting antenna might be just what you need to spur an interest in this fascinating part of our amateur radio spectrum.

I came across this interesting design on the internet. This article is more about how I went about making the antenna and the great contacts I have had with it.

This article is all my own work, none of it has been 'cut and pasted' from the internet. All drawings and photographs are originals by me, and show the actual dimensions used in the antenna I constructed. All antenna software plots are from the actual design dimensions I used, not the program's demo files.

Just about all new transceivers available these days have the six metre band 'built in', with the same features and functions available at HF, and often with the ability to use the rig's on-board antenna tuning unit. Some rigs even have tone and DTMF capability for repeater usage as well.

The 50 MHz amateur radio band is one of my favourites. The spring and summer months when there is increased activity due to tropospheric and E layer 'Es' enhancement are peak times for six metre action while we are at the bottom end of the sunspot cycle. Indeed it is possible to work all Australian states (and maybe even ZL!) in the course of one day. The signals on the band can range from nothing, only hiss in the receiver, to anywhere between 20 over 9 to barely readable, then suddenly disappear just as quickly as they came. Maybe that is why they call six metres the 'Magic Band'!

Indeed, many enthusiastic six metre operators will remark to other hams not yet enlightened that when six metres is open, you can 'work the world with a bit of wet string'; perhaps, but you will do a lot better with a decent antenna!

Just what is a 'decent' antenna for

six metres? You will probably get ten different answers from ten different amateurs ranging from a dipole, a quarter wave or half wave vertical, to a three element or more Yagi.

The Hentenna is not a new design. Japanese amateurs JH1FCZ, JE1DEU and JH1YST are credited for creating the Hentenna in the 1970s and developing the antenna to become a very popular six metre radiator widely used in Japan to this day. Outside Japan, the antenna was not generally well known until it was included in some popular antenna books printed in the last few years and some of the Japanese articles relating to the antenna were translated into English and published on the internet.

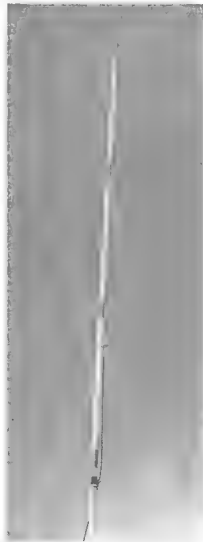
The name Hentenna comes from the translation 'Hen' meaning 'strange' in Japanese. Early on in its development, the theory and good performance were not easy to explain. However, modern computer modelling shows the antenna to be a good performer, and to have approximately 3.5 dBd of gain, with a radiation pattern similar to that of a dipole, with sharp nulls at right angles to the radiating lobes.

What is a Hentenna?

I will not go into the complex theory of the antenna, but Figure 1 shows the Hentenna as a loop of radiating material fed somewhere around 1/10 of a wavelength from the bottom of the complete loop. The larger vertical loop is the radiator while the lower loop acts as a matching section and to lower the radiation angle. Figures 2, 3 and 4 show the radiation pattern, SWR and Gain/ Front to back graphs, all plotted from the excellent free antenna modelling software 'MMANA-GAL'.

Building it

Table 1 lists the dimensions for the antenna for the six and two metre bands. Do not be too worried about exact



dimensions; although you should probably stick as close as possible to the measurements given, a few millimetres of inaccuracy should not significantly affect the operation of the antenna. (Table 1, Figure 1)

Construction of the antenna should be fairly straight forward. A wander in the shed with a coffee in hand and the grey matter churning will probably have most amateurs putting together the bits and pieces needed within a short space of time. You might need a trip to your nearest hardware shop if your junk box is lacking. The beauty of this antenna is the radiating loop could be wire, aluminium strip or tubing, copper wire or tubing, or any combination of the above - whatever you have in your junk box or antenna building inventory.

My version of the antenna uses a collapsible six metre long fibreglass 'Squid Pole' extended to four metres long as the centre support, and two lengths of 10 mm wooden dowel simply taped to the squid pole about three metres apart with

electrical tape, as the top and bottom supports to hold the wire.

In my case, I did not want to drill holes or impede the function of the Squid pole in case I want to use it for another project. I used brass picture hanging wire for my Hentenna's radiating loop because it was available, cheap and you can solder to it!

The wire is strung around the 'frame' of the antenna supported by small brass screw eyelets screwed in to the ends of the timber dowels to hold the wire in place.

Those with a better stocked junk box than mine will use what they have available. Another method might be to use a piece of wooden dowel for the centre support and aluminium tubing, approximately 8 or 10 mm in diameter and mounted through the dowel as the top and bottom parts of the loop. Aluminium welding wire crimped to a lug could then be screwed into each end of the tubing top and bottom to complete the loop. Use your imagination; I am sure you will come up with a workable system.

Feeding it

Feeding the Hentenna is also easy, no fussy gamma matching, loading coils or trickery is needed.

I used two lengths of insulated wire stripped from a discarded piece of 240 V appliance cord (never throw anything out!). I made a simple terminal block where my 50 Ω coax attaches to the wires from an old piece of plastic discarded from the lid of a long dead Jiffy box.

I then soldered each end of the feeder wire to the loop wire after I had adjusted the VSWR to minimum. To protect the solder connections from the elements, I have found a product called 'Starbrite Liquid Electrical Tape' to work very well for insulating and protecting antenna connections from the elements.

The coax and terminal assembly was cable tied to the support mast in a couple of places to keep it firm but still allowing both the feed point wires to be moved up and down the loop wire to adjust for the lowest SWR before soldering the feed wires to the loop wires.

A word about coaxial cable

As we move higher up the amateur bands in frequency, the loss of the coaxial cable being used becomes more important and should be taken in to consideration.

At 50 MHz, especially if the rig is a reasonable distance (for example, greater than 30 metres) from the operating position, consider using 8813, RG8, RG213, LMR240/400 or other low loss coaxial cable, so you maximize the amount of signal transferred when transmitting and receiving.

Using older RG58 coax cable might degrade the performance of this antenna if the distances involved are substantial.

Adjusting it

To adjust the antenna, simply place it on a temporary support so the feed point is at a comfortable working height, around 2.5 metres off the ground and as far away from surrounding objects as practical.

Remember, you are adjusting the position of where both wires attach to the loop. Keep everything symmetrical,

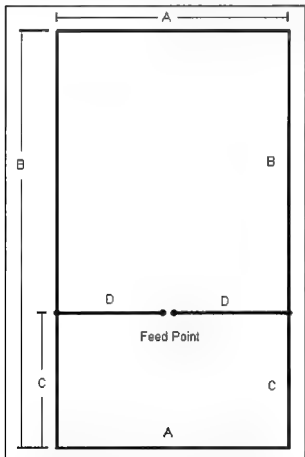


Figure 1: The electrical diagram of the 'Hentenna'.

Dimension	50.1 MHz	53.5 MHz	144.1 MHz	146.5 MHz	Wavelength
A	0.997	0.934	0.347	0.341	1/6
B	2.993	2.800	1.040	1.022	1/2
C	0.598	0.580	0.208	0.204	1/10
D	0.495	0.456	0.164	0.160	n/a

Table 1: All dimensions in metres

make sure both sides are the same distance from the bottom of the loop and you will not go wrong.

Using low power, announce your call sign and check the VSWR at your chosen frequency and note. If required, slide the feed point wires either up or down the loop wires to bring the VSWR to a low level.

You should easily be able to adjust the antenna to a VSWR reading of 1:5 or better. Remember to keep the adjustments small, say 10 mm at a time.

One mistake I made when initially trying to adjust it was moving the feed point wires too far each time. Keep the adjustments short from the starting position and it will be fine. My antenna has a 2:1 VSWR bandwidth of approximately 3.2 MHz.

So how does it perform?

I have tried several different radiators for six metres over the few years I have been active on the band. The antenna presented here is easily the best of the bunch in terms of simplicity and cost, but most importantly – performance.

From the moment I plugged the coax from the antenna into the radio, I knew it was special!

Of all the antennas I have tried for six metres, I have always struggled to hear the VK5RBV beacon on 50.315 MHz. at 145 km to my east. Even before I had adjusted the VSWR, I was hearing this beacon loud and clear in the receiver.

Turning the antenna 90° to the beacon saw it disappear into the noise. This meant that the antenna had directivity.

I was also able to test the antenna on SSB with Doug VK5GA, located approximately 30 km away at Paringa, who gave me a gratifying 58 report off the back of his three element Yagi.

Turning the antenna at 90° to Doug saw his signal drop to 51, confirming the nulls off to the sides.

On the 28th and 29th of October, 2008, the first good 'Es' opening of the season occurred with VK4QB, VK4DV, VK4EK, VK2SJJ, VK4MA, VK2BXT and VK4FNQ all logged with good signal reports both ways.

The antenna will be coming with me when I will be operating portable for the WIA 2008 Spring Field Day.

See you 'on Six'!

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"Hentenna" <http://homepage3.nifty.com/lzk/ANT3.html>

"Six Meters A Guide To The Magic Band" Ken Neubeck WB2AMU, ISBN 0-9705206-3-8

MMANA GAL software is a free download from <http://mmhamsoft.amateur-radio.ca/mmam/>

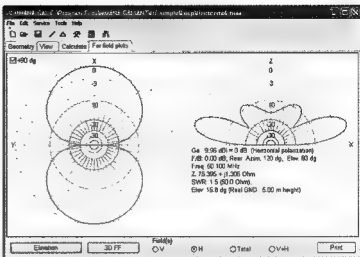


Figure 2: The radiation pattern of the 'Hentenna'.

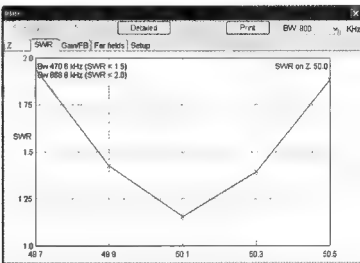


Figure 3: The SWR graph of the 'Hentenna'.

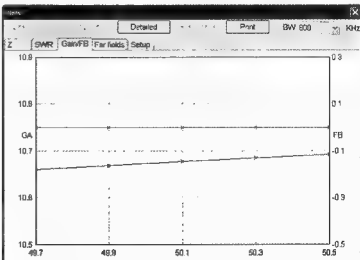


Figure 4: The gain and front-to-back graph of the 'Hentenna'.

Currie Lighthouse, ILLW, King

Glenn Alford VK3CAM

As August 2009 fast approaches, I look back to that great ILLW time spent on King Island.

The island has two major lighthouses. Cape Wickham to the north is a major lighthouse constructed from local granite. Built in 1861, it is the tallest classical built light house in Australia, 48 metres. There is very little in terms of facilities and accommodation at this end of the island. But it is still worth the visit to a truly spectacular site, exposed to Bass Strait.

Currie lighthouse is located at the harbour entrance, only a short distance from the town centre. The lighthouse was constructed from pre-fabricated wrought and cast iron sections, and shipped from England. Erected in 1880, the lighthouse stands at 21 metres.

Currie is an ideal location for amateur radio operations, being located forward on a small spit of land, with very few surrounding buildings. But best of all, there is no RF noise or interference.

It was to be a small team that year

to hit the island, John Longayroux VK3PZ from the EMDRC and myself. Accommodation was found less than a kilometre away from the lighthouse, in a refurbished fisherman's cottage, quaint but warm and friendly. Much like the island.

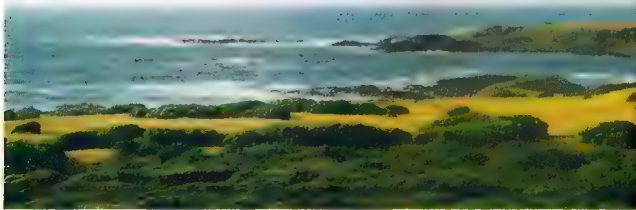
Having arrived on the island, the best mode of transport is a hire car. There are two companies on the island, but it is always handy to book ahead. Both offer airport service. While the town is not far from the airport, the car is invaluable when it comes to touring, which is another good reason to leave the 'big smoke' and become involved in these weekends.

Fortunately, with some support from the local manager we were able to gain access to the old brick maintenance shed, located about 50 metres from the lighthouse base. It provided an easy path to run the coax to the antennas. Being on an island, it can get windy and cold, but the heated maintenance shed was the ideal haven.

The antennas consisted of a wire dipole, and the favourite Cushcraft R7 vertical on a demountable pole. This would give us coverage on HF bands, and from this location with low noise levels. The rig of choice was an ICOM IC-775DSP, a robust box that simply needs to be plugged in. With built in tuner, power supply and two receivers, it makes an ideal rig, although it is a little on the heavy side.

So by Friday afternoon we were well established and ready to operate, with everything tested and in place. Over the weekend we worked mainly Australian and New Zealand stations, with a few DX stations. Propagation proved to be poor, total contacts around 80. But propagation is a bit like the weather, not much we can do about it, it will improve the next time.

It was still a great weekend, with quite a bit to see on the island. There is a good web site, www.kingisland.org.au that has lots of good information including accommodation options. Certainly you



Island

should find time to have a meal at the Boomerang Motel, with spectacular views over the golf course and Bass Strait.

The Cheese Factory, located not far out of town, is world famous for its produce, making it a definite stop. Crayfish can be bought from the blue concrete block building on the main road near the race course.

2008 attracted 406 lighthouse registrations worldwide. This is not a competition, no winners, but a good fun weekend, where we are all winners, including passing visitors that gained a short exposure to our great pastime. The web site for registrations and guidelines for the event is www.illw.net. It is easy and simple to become involved, to choose a lighthouse, register, and circle the dates on your calendar. Finalise your detailed planning lists and make sure it all happens.

So this year's planning is underway for that one great weekend, 15th and 16th of August.

International Lighthouse/Lightship Weekend

An annual amateur radio weekend event

Organised and controlled solely by
the Ayr Amateur Radio Group, Scotland.



This year's event - 15-16 August 2009

The basic objective of the event is to promote public awareness of lighthouses and lightships and their need for preservation and restoration, to promote amateur radio and to foster international goodwill.

Get all the details

from the official web site, maintained by Kevin VK2CE at:

<http://www.illw.net/>

Enjoy the camaraderie of the ILLW
and also give out a few numbers in
the RD Contest.



Below is a panoramic view of Currie Lighthouse, King Island

More Photographs and Information on inside back cover



News from

Tim Mills VK2ZTM

C/- amews@tpg.com.au

VK2

The Manly Warringah Radio Society has had to move club room and meeting location.

From June and for the next two months they will meet at the Terrey Hills Community Centre, Yulong Road, Terrey Hills, advises Richard VK2SKY, the Publicity Officer for the MWRs. This new location is about one kilometre to the north of the old club rooms along Mona Vale Road, McCarrs Creek Road and then right into Yulong Road. A map of the new location is on their web site.

The MWRs was one of the original community groups who met at the old radar site at Beacon Hill. When the Council sold the site and developing the Terrey Hills facility, the Society was invited to join them. Now, due to increasing demands for space by the emergency services on site, MWRs has to leave the Warringah Volunteer Services Centre.

This is a temporary arrangement while the Society arranges a permanent home for its radio room and workshop. The existing repeater services on two metres and 70 centimetres and the club's D-STAR repeater will continue to operate normally, though there may be temporary disruptions during the transition.

The meeting times are the same, every Wednesday at 2000 hours. The doors open at 1930 hours. Contact can be made on the

club's two metre repeater 146.875 MHz, the club telephone 02 9450 1746 on the night or the web site www.mwrs.org.au. The Society provides amateur radio in the northern beaches region of Sydney.

The Oxley Region ARC conducted their 34th annual Field Day over the June long weekend.

Numbers were down this year with 74 registrations recorded. The two day event started on a sunny Saturday afternoon with several fox hunts and a gathering in the evening at a local club for dinner. Sunday morning started cold and wet but became a fine and warm day.

Activities were at the Sea Scout hall, Port Macquarie, where several traders were present along with the usual array of 'disposals'. The club had on display its recent acquired communications caravan, now in its final stage of fit out. The club has a recently renovated car trailer surplus to their requirements. If you have an interest, contact the club at vk2bor@orarc.org.

It is now six months until the annual Radio Expo at Coffs Harbour scheduled for Sunday 24th January 2010. This is an operation provided by the **Mid North Coast Amateur Radio Group**. Some of their members attended the Oxley Region field day with a range of the kits they have developed. Details of the Expo and the many group activities can be found on their web site: www.mncarg.org.

This month the **Waverley Amateur Radio Society** will be holding their annual auction on Saturday the 18th July. The gates open at 0830 and the sale starts at 1030 hours.

The venue is in the clubrooms in Vickery Avenue, Rose Bay in Sydney's eastern suburbs. No catalogue is produced, but details of some of the items to be sold may be posted on the web site before the sale. The Society meets on the third Wednesday evening and has a project afternoon on the first Saturday each month.

In early April an article promoting the Club and amateur radio was published in the local paper – the *Wentworth Courier* – a copy can be found on the club's website www.vk2bv.org.

Next month will be the annual Winterfest of the **Blue Mountains ARC** on Sunday 23rd August at Glenbrook in the lower Blue Mountains. Details will be available via VK2WT News and these notes.

Next month also has both the Lighthouse and Lightships operation and RD Contest on the same weekend. This makes an excellent opportunity to increase activity in both events. Register interest in the Lighthouse operation at the official ILLW website: <http://www.illw.net/>. Take care that you go to the correct web page – another site in the US claims to be the "original" but is in fact a latecomer!

Amateur Radio in Sydney's north is provided by the **Hornsby and Districts Amateur Radio Club Inc.** They meet on the second and fourth Tuesday evening at the Mt. Colah Community Centre, Pierre Close, Mt. Colah. HADARC runs assessments for all licence levels – there is a form on the club's website www.hadarc.org.au or telephone Tony VK2BTL 02 9487 3383.

HADARC also has a page on Facebook. Users can search for "VK2MA". HADARC conducted their 32nd AGM in May.

The **Hunter Radio Group** is a long established Newcastle club and was originally the Hunter Branch of the NSW Division. They meet on the second Friday evening of most months at the NBN television studios, Mosbri Crescent, Newcastle. Starting time is 2000 hours. They have a news net on Monday evening at 1930 on 80 metres plus some Newcastle and Central Coast repeaters.

Planning is underway for the 2010 **Central Coast Field Day** – tentatively on Sunday 28th February. In their recent newsletter "Smoke Signals", Ray VK2HAY was urgently seeking assistance to conduct the event. It requires a lot of planning and getting enough personnel puts a strain on club resources. Maybe amateurs from outside the CCARC could offer assistance to lighten the load. The newsletter Editor of "Smoke Signals" is also urgently seeking technical articles. The club held its AGM last month.

The **St. George ARS** in southern



**Waverley
Amateur
Radio
Society**

Annual Club Auction
Saturday July 18
Auction bell at 10.30 am, doors open 8.30 am.
Clubhouse, Vickery Avenue, Rose Bay
Useful ham radio,
computer and electronic gear.
Open to all who wish to buy or sell. All details at
www.vk2bv.org
or Simon VK2UA
02 9328 7141

News from

VK2

Sydney has had a long running weekly net on their repeater VK2RLE 6800 Thursday at 2000 hours. With a growing interest in SSTV this mode has been added at the end of the voice net.

The next T&T event at the VK2WI site will be on the last Sunday of this month - July 26th - in the morning. As usual in the afternoon the Home Brew and Experimenters Group hold their meeting. ARNSW provides a service for Deceased Estates and equipment donations to be processed and made available to members. For the recent May event, major equipment offers were listed on the web site - www.arnsw.org.au - at fixed prices. This worked well advised T&T Officer Mark VK2XOF and will be used in future offers. Nearer to this month's event, check out what is on offer on the web site.

At the first Council meeting for the incoming ARNSW committee, Beth VK2AO was elected President; Terry VK2UX as Secretary and Brian VK2WBK Treasurer. Other portfolios were Senior Vice President Mark VK2XOF and Junior Vice President Michael VK2YC. Publicity items go to Tim VK2ZTM. Dural and Broadcast Officer Mathew VK2YAP. Web Master Brian VK2TOX. State TAC Liaison Brian VK2WBK. Education Terry VK2UX. Membership Norm VK2TOP. Trash & Treasurer Mark VK2XOF. Shed Project Michael VK2YC and Tim VK2ZTM. Deceased Estates Michael VK2YC and Mark VK2XOF. Centenary liaison Michael VK2YC.

The incoming committee is investigating conducting most of its monthly meetings by electronic means to save the travelling that some personnel have had to undertake in the past. It should also make times for meetings more flexible.

Also under consideration is the future of the 1800 number that has been available for country members. Billing records show it is now rarely used. Membership Secretary Norm VK2TOP is writing to members who have become unfinancial to clarify their status.

Mentioned in the last notes was that Bob VK0BP had been making it into the

VK2WI callbacks. While conditions held up Bob was getting into the evening 40 metre callbacks.

It is interesting that the 7146 kHz channel is now mainly clear of shortwave broadcasters and there are many overseas stations - particularly stateside with their many weekend contests. It is good to see the increased activity.

Some members of the VK2WI News Team compiled and presented the VK1WIA news for the 31st May, an interesting operation. Recently stump grinding was carried out at the Dural site to increase parking capacity. Over the years many trees had died and been subsequently cut down for firewood, leaving an array of hazards to both parking and grass mowing.

73, Tim VK2ZTM.

Twin Cities Radio and Electronics Club

Peter VK2CIM

The annual Riverina Field day hosted by the Twin Cities Radio and Electronics Club Inc. is being held at Murray High School on Sunday the 26th July 2009, on the corner of Kaitlers Road and Kemp Street Lavington. The event will be located in the assembly hall.

Opening times for stall holders is 7 am, and for amateurs and the public at 10 am.

Closing time is 1 pm. Tea and Coffee will be free to everyone.

There are a number of reasonable motels located nearby and in Albury and Wodonga for those who wish to spend a weekend here with us. On Saturday evening some of the club members will be having an informal dinner at the Albury Commercial Club Bistro where the prices are reasonable.

Contact Tom VKMY: sanders_01@bigpond.com Phone: 02 6026 2260 Mobile: 0417 546 695

Local repeater 147.000 negative offset or simplex 146.500: club call VK2EWC

Peter Presutti VK2CIM E. vk2cim@wia.org.au Mobile: 0417 441 137

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In either case a \$5.00 joining fee plus \$8.00 for one year or \$15.00 for two years gets you two interesting OTN Journals a year plus good fellowship.

Write to

RAOTC,

P.O. Box 107

Mentone VIC 3194

VK3

GEELONG AMATEUR RADIO CLUB – The GARC

Tony Collis VK3JGC

All our yesterdays

A fascinating evening was recently spent at the clubhouse reviewing communications receivers of bygone years.

Most of the equipment on display was operational and included an RA17, an AWA CR6A, a Drake 2B, a Collins 51J-4, a Kingsley AR7, an FRGC, a Heathkit, two Hallicrafters receivers the SX101 and the S36, and an Eddystone EC10 and 640. Amongst the owner presenters were Ken VK3NW, Lou VK3ALB, Chas VK3PY, Don VK3IT and Calvin VK3ZPK.

All the receivers were fully operational apart from the AR-7 and 51J-4, both of which were in need of some restoration. Each receiver was introduced by its



Vintage radios assembled in the GARC lecture room

owner with a brief description of its history and features. Afterwards those members present were invited to try their

hand at operating the receivers of their choice. It was both an enjoyable and nostalgic evening for all.

Normandy 60 years on, the myths and legends

The GARC was treated to a presentation by Robin Mawson, of a paper he presented at the Military Historical Society of Australia Bi Annual conference in 2004.

The presentation focused on the myths surrounding the post D Day landings and the reflective negative attitudes, both political and nationalistic, amongst the Allies that were subsequently to be manifest both in books as well as recent blockbuster movies.

A major element of the presentation dealt with how the Tiger Tank myth arose. This was in part due to German propaganda coupled with US and allied forces' ignorance. The US press labelled any photos of tanks as Tigers regardless if they were Panzer IVs or Panthers etc; as for the US specific fear of Tigers itself, this dated back to 1943's campaign "Torch" at Kasserine Pass where the US suffered a dramatic defeat. Tigers were used, albeit in small number, to defend Tunis, so the legend of their invincibility may have begun then.

The attack at Villers-Bocage in June of 1944 where several Tigers had stopped the advance of the British 7th Armoured Division was what legends are made of

and this really cemented the legend of the Tiger tank. It was here that the SS legend Michael Wittman and his crew single-handedly destroyed about twenty-five armoured vehicles (note they were full of munitions and fuel). This caused the British to acquire a sense of insecurity over the ability of their equipment to defeat these German tanks.

Myth it was, as by the end of the Normandy campaign there were fewer than five Tiger tanks in the area.



Robin Mawson Presenting
"Normandy 60 years on"

Repeaters and beacons

The beacons and three repeaters, two RGLs (VHF and UHF) and RGC, maintained by the GARC, are all working well.

The Otways repeater at Beech Forrest VK3ROW has been reported for some time as having various problems from lock ups to varying output power.

As there is no person who can take on the repair task in Colac, the job has fallen back on the GARC through the offices of VK3NW and VK3NJP.

Amateur Radio Victoria which holds the licence has been advised that this repeater will be off air for a considerable period whilst it is being refurbished. At this time it is not proposed to add CTCSS to this repeater and it will be returned to the site later in the year.

Future events

All future events at the GARC and a mine of useful information can be found by logging onto www.vk3atl.org

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News from

Christopher Comollattle VK4VKR
vk4vkr@wia.org.au qtc@wia.org.au



Mid Year

As the year progresses we are only getting closer to Christmas, it is only 178 days away. But let us get over the winter first, warm up a little and send something to qtc@wia.org.au or vk4vkr@wia.org.au as I am running a little short in what is happening with amateur clubs around VK4.

CHARC

The Central Highland Amateur Radio Club Annual General Meeting is taking place at Camp Fairbairn near Emerald from late Friday afternoon 25th to Sunday morning 27th September.

Accommodation is available on site; there is a big BBQ dinner and Monster Auction on Saturday night and a recovery breakfast on Sunday.

For further information contact Secretary Gordon Loveday VK4KAL on 07 49854168 or email gordon.l23@aussiebroadband.com.au While you are online also check out the Central Highland Club's Yahoo site at <http://au.groups.yahoo.com/group/charc/>

VK4FUU

Ashley and Brenda onboard *Ashymakaihken* are still sailing the high seas. It was good to hear them using the local Rockhampton repeater during their stopover.

Last report 11 June 2009 2347UTC
22.26.63S 150.44.04E

Anchored at Pearl Bay, Port Clinton
QLD Australia.

TARC

The Townsville Amateur Radio Club Inc has a good social and WICEN calendar for July and August. Are you able to assist them? If so, then contact co-ordinator Eric "Blue" Collins VK4FBLU 47754184.

Sat 18 July: TOWSA Subway Magnetic Island to Townsville Swim - Cleveland Bay

Sun 19 July: TCAC King of the Hill, Hill-Climb Heat Three - Mt Stuart

Sat 8 Sun 9 Aug: TCAC Cardwell Classic Rally - Cardwell State Forest

Sat 22 Sun 23 Aug: TERAHA Endurance Ride 120/40/20/5 - Bluewater Region

Sun 30 Aug: Strand Masters Swim

WICEN Net

WICEN Queensland holds a net every Sunday on 7075 kHz from 8-30 am (2230 UTC). The net calls in regular stations and then invites new stations to call in. If conditions are poor on 7 MHz, net control then moves to 3.600 MHz.

If you would like your club HF net details added here or if the information printed is incorrect/not complete, please let somebody who can change it know about it vk4vkr@wia.org.au

And finally a very large thank you to all the VK amateur radio operators that assisted me in sourcing information required for programming a radio of mine. It goes to show that we are there to support our hobby and other operators. THANK-YOU.

Regional HF Nets

Monday Evening: Mackay Club Net - VK4WIM Net Control - 3597 kHz from 0930 Z

Tuesday Evening: RADAR Net - VK4WIR Net Control - 3613 kHz from 0930 Z

Wednesday Evening: Gold Coast Net - VK4WIG Net Control - 3605 kHz from 0930 Z

Wednesday Evening: Bayside District - VK4BAR 3567 kHz from 0930 Z

Thursday Evening: Henry Fulford Memorial Net - VK4WAT Net Control 3588 kHz from 0930 Z

Thursday Evening: Sunshine Coast Net - VK4WIS Net Control 3660 kHz from 0930 Z

Thursday Evening: Hervey Bay Net - VK4CHB Net Control 3615 kHz from 0730 Z

Friday Evening: Central H/lands Club Net - VK4WCH Net Control 3618 kHz from 1000 Z

Friday Evening: Lockyer Valley Club Net - VK4WIL Net Control 3570 kHz from 0930 Z

Saturday Evening: Darling Downs Net - VK4WID Net Control 3587 kHz from 0930 Z

Sunday Morning: WICEN QLD Net - VK4IQ Net Control 7075 kHz from 2230 Z

Sunday Evening: North QLD Net - VK4WIT Net Control 3605.4 kHz from 0930 Z

Sunday Evening: Dalby and Districts Net 3585 kHz from 1000 Z

Until next time 73

VK4VKR (IRLP 6973)
On the side and listening

ar

2009 Club Grant Scheme

Innovative ideas are sought for

Projects to attract new amateurs

and

Projects supporting emergency communications

Applications close 31 July 2009

The rules and application form can be downloaded from

<http://www.wia.org.au/members/affiliation/about/>

New chums, old chums and a passing of the baton

Changing times and busy times for **ALARA** at the moment. New president, new scribe, one of our longest time licensed members meets one of our most recent and all the while time's winged chariot brings the major event, the 2012 YL International Meet, closer to Adelaide.

Hello everyone! **ALARA** has been quietly active this month with a new board of office bearers in place.

Christine Taylor VK5CTY who usually writes this column and has been doing a wonderful job of it has decided to hand it over to me. Big shoes to fill as Christine is a veteran and I will try my best. She is one of only two honorary life members of **ALARA** and she has promised to guide me.

I think its kind of opportune that I am also writing about **ALARA**'s other honorary life member in my first column for AR – Mavis Stafford VK3KS who marked an important milestone as a YL in Melbourne in the first week of June.

Mavis Stafford VK3KS

When the parents of Mavis Stafford VK3KS took in the local school teacher as a boarder at the Victorian town of Rupanyup in 1939, little did they know that it would be a part of **ALARA** history.

From Ivor VK3XB who she later married, Mavis picked up Morse code and a passion for amateur radio. She obtained her certificate of proficiency and call sign on 6 June 1939 and soon became active on radio.

Within three months and about 110 contacts, the outbreak of World War II led to temporary suspension of her radio transmitting. In 1961, the Melbourne Herald profiled Mavis as one of three housewives who were the only qualified women members of the Victorian Division of the Wireless Institute of Australia.

She was one of the first YL members of the exclusive First Class Operators Club, which requires 25 words a minute Morse – not an easy target to achieve. She was also one of the first members of **ALARA**, hosting some of its early meetings in her home. Here is a report from Marilyn VK3DMS and Jean VK3VIP from Melbourne who were at a special event to celebrate Mavis's 70 years on radio:

Mavis VK3KS 70th Anniversary

On Saturday June 6th, the exact date that 70

years ago Mavis VK3KS received her licence under that callsign, 40 amateurs and friends celebrated at a special lunch at the Wheelers Hill Hotel in Melbourne. Many of her old friends, Jenny VK5ANW, Gwen VK3DYL, Marilyn VK3DMS, Bron VK3DYF, Robyn VK3WX and Pat VK3OZ among them, joined in greeting her as she arrived. Now she knew there was to be a lunch, but not that it would be such a huge event.

Also present were Michael Owen VK3KI, President of WIA and Robert Broomhead VK3DN.

During the afternoon Michael Owen presented Mavis with a certificate



Mavis VK3KS and Marilyn VK3DMS share a laugh and reminiscences at the plaque presentation.

from the WIA to acknowledge her achievement of 70 years, and Marilyn VK3DMS, Immediate Past President of **ALARA** presented her with an inscribed plaque from the members of **ALARA**. She also received a lovely bouquet of flowers, and cut a special cake.

Everyone present received a booklet showing Mavis's achievements through her life.

Mavis also met **ALARA**'s new and youngest member Monique VK3FWPZ, along with several other young amateurs. She was so happy to see the younger generation picking up the baton.

(See also the Inside Front Cover and the separate story on page 23.

Photograph: John Fisher VK3DQ

2012 YL International Meet in Adelaide

The plans for the 2012 YL International Meet to be held in Adelaide are slowly taking shape. New **ALARA** president Tina VK5TMC (see AR cover) is the coordinator for the event and is busy planning the events.

Some tentative dates in May 2012

have been proposed and venues for accommodation and the Meet are being scouted. The Meets are always great places for YLs to meet and share their experiences. This time, a trip to Darwin on the Ghan is also being proposed (as follow-on to the Meet in Adelaide).

Considering that the Meet happens around the best tourist times to visit Darwin, it promises to be an unforgettable experience. Travelling by the historic Ghan is an experience by itself. Lots of YLs are already getting excited and have started saving for the Meet.

Great contests for YLs

Contesting is a facet of amateur radio and many of our YL members are avid contesters.

For those who want to notch up a few milestones and decorate their shacks with certificates, contesting is the way to go. Our own YL member Shirley VK5YL has received numerous accolades and certificates recognizing her participation in contests organized by groups in New Zealand and Canada. The Canadian Ladies Amateur Radio Association



is proactive in organizing various contests including the unique EchoLink contests.

It is a great reminder to all YLs that there are a lot of contests out there and certificates and trophies waiting to be won.



Gold Coast members meet

Members of ALARA in Gold Coast met recently at the Gordoni's Restaurant, Paradise Point. There were seven ALARA members among the 22 at the event. They had an enjoyable time. Marisa VK4FMAR, ALARA's new Secretary, won the door prize, a crocheted doily runner donated by Treasurer Margaret VK4AOE.

The next get together for the members in VK4 is ALARA's 34th Birthday Party, held at the GCARS club rooms at Nerang, on Saturday 18th July at 11 am. It is a good time to catch up with the YLs and their OMs over a sausage sizzle and raffles. Do not forget to bring some finger food. For information, contact Pam VK4PTO, the VK4 State Representative at vk4pto@tpg.com.au

Do not forget that it is ALARA's 34th birthday on 25th of July 2009. Some clubs will be having a birthday luncheon. Look out for news about special birthday greetings sessions on the 80 metre band and do not forget to tune in.



Gold Coast ALARA members (left to right) Pam VK4PTO, Jan VK4FJAN, Catherine VK4VCH, Robyn VK4HRH, Sheralyn VK2LUV, Brenda and Mansa VK4FMAR.

Get ready for contesting in August

The big contest for us YLs is around the corner in August. It is time for the ALARA contest on the weekend of 30th and 31st of August. The other major contest is the Remembrance Day contest on the 16th and 17th of August.

Keen contesters, it is about time to get it all rolling for a long night on the radio, with lots of coffee and making QSOs. It is probably a good time to check that the radios are working, the antennas are tuned, the logging software all working, and to familiarise yourselves with the contest rules.

There are some good logging software packages catering to these contests: the popular ones being the VK Contest Log (VKCL) by Mike Subocz VK3AVV, VK5DJ RD logging program by John Drew or the WinRD+ logging program by James McBride VK6FJA. The rules for the contests and the links to download these programs are available on the WIA website. Good luck to all contesters and hope to catch you on air.

News from

Keith Bainbridge VK6RK

VK6

The Northern Corridor Radio Group

The last social meeting of the NCRG saw a visitor in the form of Bob VK6POP, now a national director. Bob was there to present two different items.

First was the presentation of the Al Shawsmith Award which was awarded to John Sparkes VK6JX for his article "DX Chasers Club - Faure Island DXpedition, 2008" published in November 2008 AR. John is the club's antenna coordinator and a former occupier of this position of mine many years ago. Well done John, it is always good to see a fellow member get recognition nationally.

The second presentation was to yours truly as the initiator of the VK6-ZS 2 metre beacon project and the cheque for \$1000 has already been spent on a tower, antennas, and so on! The beacon project is coming on well and the foundations for the tower are to be laid on Sunday 7 June so things are moving along.

I would like to thank Bob for coming along to present both items.

The weekend of 30/31 May saw the club host Bernd VK6AA/VK2IA in his attempt to break the Oceania record for the CQ WPX CW contest. Unfortunately he did not quite make it but he did get over five million points in the Single Op/Single band 40 metre category, helped along by the clubs 40 metre beam no doubt.

I do not know how people survive 48 hour contests with little sleep and living on bananas!

There have also been several "expressions of interest" from hams around the world intending to visit WA and wanting to do some operating from the club premises, including a very serious contest operation from one of the "Californian Kilowatts" and an Italian amateur wanting to do some serious DXing from somewhere new. All are welcome at Ham Heaven, after all, the members cannot use it all the time, so we will accommodate guest operators whenever possible.

The club was involved in a major

project recently which saw those present, with the help of cranes and various other substantial machinery, acquire two more towers for Ham Heaven.

One is 30 metres (100 feet), the other 20 metres (65 feet). The original use of the towers was part of the Ionospheric Prediction Service at Mundaring. Sadly this was vandalized several times and the decision to remove the equipment was made and the club was offered two of the towers provided we removed them all from site.

The third tower was removed on behalf of IPS and will be delivered to their site at Meckering where it will be used to study hydrogen bursts emitted from the Sun on frequencies from 2 - 40 MHz.

All clever stuff and a pleasure to be involved in the process.

WARG

Reported by Heath VK6TWO.

As you may be aware, I have now taken on the President's position at WARG, and we have had a substantial change to the remainder of the committee.

There are going to be some very positive changes at WARG, which have already begun. Danny VK6ZUK and myself were the key drivers for the D-STAR project and we had a very strong following.

I am also a member of NCRG, committee member of VHF Group and tech officer in WICEN, so I am hoping to be a bit of an advocate for all of the clubs. I am hoping to be a key passage of information between all the Perth clubs to try and get some cohesion and joint activities.

Danny and I are also trying to increase WICEN support and activity within WA by utilising as much information as we can from other states and getting into the ears of some of the local authorities. We see the role of WICEN as being crucial in the event of any disasters and emergency communications.

Great news Heath, I reckon you could be a candidate to replace me on the VK6 Advisory Committee after my

resignation two months ago? Good luck with the new position.

Hills Group

Reported by Mick VK8IN.

The members have been very busy with a station refurbishment. Stage one is a mast and antenna upgrade for HF, a four element beam is now in the air and has had very good results, probably has a lot to do with our height ASL, of almost 300 metres! Listen out for VK6AHR Saturday afternoons and give us a call.

We would also like to receive reception and usage reports for the Morse Tutor beacon on 3.686 MHz LSB, generally on-air for two hours each morning and evening, 2330 to 0130 and 1130 to 1330 UTC everyday. Transmission is approximately 35 watts into a G5RV antenna.

Stay tuned for further developments. Thanks for the update Mick and congrats on the new callsign.

On the subject of new callsigns, there have been many changes recently with the freeing up of two letter calls. Personally my initials are still in the hands of VK6KB so I cannot have my first choice! However I noticed VK6RK was available. Those are my Christian names and were also part of my first call when I emigrated in 1987 (VK6BRK), so I applied and I am now officially VK6RK.

I love it, so much easier in pileups on SSB and a nice ring to it on CW. I still hold VK6XH and will do for the next four and a half years, until it expires. So you can email me now on either call, vk6rk@wia.org.au or vk6xb@wia.org.au

Finally to the event of the year!

The NCRG Hamfest 2009 will once again be held at the Cyril Jackson Recreational Centre, Fisher St., Ashfield on Sunday 2 August. Several traders have expressed their intention to be here this year including Bushcomm, Andrews Communications, Vertex and

City Online to name a few. The booking form is found at www.ncrg.org.au

Please note there are no charges for tables at all, however, everyone passing through the door, including NCRG members, pay the \$5 admission. There will be the usual excellent food and hopefully this year's attraction will be the "Morsecodeans", more news to follow.

It is the only major event held in WA annually and we hope you will support it with your attendance, after all it is the

only chance to catch up with old friends that you never speak to anymore!

The attendance has been fairly steady at around the 400 mark for some years now, making it one of the biggest Amateur radio events in the whole country. Hopefully, as the invites go out, more traders will confirm their attendance and we in WA can experience what it is like to attend a mini mini Dayton!!

There will be the usual recycled junk, sorry pre-loved equipment from

the various groups and individuals and there are always bargains and things you just might need for that project you have in mind. Personally I still have something I picked up at a Hamfest about 14 years ago which is waiting to be put into use.

Well I have dribbled on long enough so I wish you all the best of DX: the sun is showing some life as I write this, so perhaps by the time you read it a month later, DX will be around

73 from Keith VK6RK.

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Photo 1: WIA Director Bob VK6POP presents the AI Shawsmith Award to John Sparkes VK6JX for his article 'DX Chasers Club - Faure Island Expedition, 2008', published in the November, 2008 edition of Amateur Radio magazine.



Photo 2: WIA Director Bob VK6POP presents a cheque for \$1000 to the NCRG, represented by Keith VK6RK, for their project developing the VK6-ZS two metre beacon project.

News from

VK5

Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY and John Elliot VK5EMI

The May meeting was an unusual one. The talk was given by two young lads, sons of Graham VK5ZFZ. They have lived with computers all their lives (among a number of other interests they share with their father) so are much more familiar with what the computers can and cannot do.

They gave everyone an insight into how to retrieve lost files, how to manage your files more efficiently and generally how to make your computer do what you want.

Of course to make it do what you want you have to be sure you know how to tell it to do just that.

As most of us are aware when our

computers do not do what we want it is because we have not told it correctly. I have had a sign on my computer:

"Why does my computer do what I tell it to do instead of doing what I want it to do?"

Well after the talk given to AHARS I may be able to throw that sign away!! I hope!

Do not forget that the AHARS Buy and Sell will be in September this year (we could not get the hall in November), so be ready for Sunday September 13. Start clearing out your shack and gathering your money now.

To book a table please contact David VK5KC phone 8278 8108 or email davidclegg@internode.on.net

There will be meetings on the usual third Thursday of June and July at the Belair Community Centre as well as the mid-year Dinner on 12th July.

There will also be a visit to the ETSA Museum on July 5th, of which you will hear more at the next meeting.

The May meeting was concluded with a most successful auction of items from one of our current deceased estates.

Next meeting we will be putting more items on the front table for members to place their bids. In the meantime, on-line members will receive updates on major items available for tender.

Silent Keys: Over the past three months, we have said goodbye to three members: John Hall VK5GMH, Bryan Trott VK5SV, and Jeff Daly VK2MFR (formerly VK5MFR).

These fine people have contributed much to AHARS and amateur radio in general. Please check our website newsletter for more details.

■

News from

Justin Giles-Clark VK7TW

Email vk7tw@wia.org.au

Regional Web Site reast.asn.au

VK7

The 2008-09 WIA National Broadcast year saw VK7 with a healthy total of 5537 call-backs putting us just behind VK5 with 5760 and ahead of VK3 with 4400 call-backs.

This averages about 109 call-backs each week for 51 weeks of broadcasts. Not bad for a state that only has approximately 600 licensed amateurs and these call-backs do not include our 40 m and 20 m broadcast call-backs as these frequencies only rebroadcast the VK7 Regional News.

Northern Tasmania Amateur Radio Club

NTARC's May presentation was from Ian Hart VK7KIH from the Royal Flying Doctor Service based at Launceston Airport.

The evening even included showing off an original Alf Traeger radio which I understand Winston VK7EM has offered to restore back to working order. There were even pretend casualties with Kerry VK7FKEK and Duncan VK7FLAK helping with the presentation. A great night, thanks Ian.

North West Tasmanian Amateur Radio Interest Group

The new NWTARIG website can be found at: <http://www.my-x15.net/nwtarig/>

Much work has been undertaken on the VK7RMD Mt Duncan repeater and thanks go to many people, especially Joe

VK7JG and Winston VK7EM.

The link between Rocky Cape VK7RAC 70 cm and the Mt Barrow VK7RAA 2 m repeaters has been licensed following a 12 month trial period. The permanent link provides a gateway for NW amateurs into the North.

The Radio Experimenters and Social Group has been meeting regularly on Saturday mornings at cafes along the North West coast. These are great social occasions with much discussion and socialising.

Recently members of the EMDRC were in attendance, Baden VK7BRY was a visitor from the South and Ron VK7HRM showed off his new APRS tracking system which can be worn on a belt.

North West Tasmanian Amateur Television Group

Congratulations to James (Hamish) Curran VK7FHCL who passed his Foundation licence assessment in May. Welcome to the bands Hamish.

The NWTATVG has been experimenting with video streaming and flash video downloading with good results thanks to Danny VK7HDM, Tony VK7AX, Ivan VK7XL and Rob VK7OM.

Testing of the Club's ATV Repeater is continuing with the propagation tests and links proving a challenge for members.

Radio and Electronics Association of Southern Tasmania

REAST's May presentation was a repeat of the GippsTech - Special Edition talk on *Over the Horizon Optical Communications* that was given by Rex VK7MO and Justin VK7TW. The presentation was videoed and has featured at a recent ATV night. Our condolences and thoughts are also with Bill VK7AAW whose XYL Rosemary passed away recently.

ATV nights are continuing to prove successful with many coming along and getting involved with experimenting and ATV.

Some of the topics covered include: Digital L/C meters, historic film of PM John Gorton at Honey Suckle Creek during the moon landing, converted 16 mm film from Peter VK7PD and Bevan VK7CX on a 1965 VK7 Hamfest in Campbelltown, a day in the life of a Medical Physicist with Mike VK7MJ, Phil Harman VK6APH's talk on the HPSDR project from the 2008 ARRL/TAPR Digital Communications Conference, Xenon discharge lamps and blue-ray player electro-optics, just to name a few.

We are currently going out on 444.25 MHz analogue ATV and 1283 MHz Digital ADB-S ATV (thanks to Jack VK2TRF). Come along and see what it is all about - Wednesday nights from 7:30 pm except the first Wednesday of the month.

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Over to You

Point Cook Signals School Courses S1 and S2

I am J W Shield VK6SX and I am looking for old RAAF compatriots from January, 1940.

I was stationed at Point Cook Signals School near Laverton in Victoria where I met other radio amateurs who had been drafted into the Signals Corp.

We were on courses S1 and S2 together and I am wondering if any of you are still around!

As I am now 90 years old there may not be many others, but if you were there, or perhaps you know someone who was on the same courses as me, I would really

appreciate hearing from you.

Please contact me direct VK6SX QTHR or via Keith VK6RK on email vk6rk@wia.org.au

73 J W Shield VK6SX.

A 1296 MHz saga

Michael Coleman VK3KH and Ian Cowan VK1BG

Two years, seven months and 90 seconds

This is the story of the development of Aircraft Enhancement activity on the 23 cm band by Mike VK3AAK/VK3KH, and Ian VK1BG.

We first met on the daily AE net on 144.2 MHz on 29 June 2006. This was via a fairly easy contact between two reasonably well equipped and located stations. Mike lives at Mt Eliza, a bay side suburb of Melbourne, whilst Ian lives in the western suburbs of Canberra.

The path between us is pretty good, and is well served by high flying jets on the Melbourne to Sydney route. From that time on we had fairly regular contacts on two metres on the AE net, which generally runs between about 8 am and 9 am local time.

About four months later, on October 15, we cracked it for a QSO on 432 MHz., and this too was the start of a string of QSOs on that band, though contacts here were not as frequent as on two metres.

We met for an eyeball QSO in Canberra during January of 2007, and the idea that we might be able to get through on 23 cm was floated. Tests then began on an irregular but frequent basis. At this stage the two stations were running 15 watt transmitters, and single Yagi antennas.

First attempts were disappointing, and for some months nothing much was heard by either station. On June 30, 2007 we heard carriers, and shortly later weak CW was identified.

GippsTech 2007 saw another face to face meeting between us, and it was agreed that persistence would probably be rewarded.

Alan Deylin VK3XPD also helped, as at that GippsTech he had some 60 watt linear amplifier modules for sale, and we each acquired one. In due course, each of us had installed one of these amplifiers.

The near miss rate increased quite

a bit after that – we were now able to hear carriers quite easily, and that helped us solve three of our problems. These were beam heading, timing, and frequency calibrations of our respective transceivers. When signals are very weak, as ours were at the outset, these three parameters all have to be spot on.

Using SSB, there were numerous occasions on which we were almost able to claim a QSO, but there was always something missing, usually the final 'QSL' exchange needed to formalize the

contact.

Then on 6 August 2007 we completed a two way contact, and we both felt

quite elated, and relieved, that the months of effort had finally paid off.

Ian went off on leave the next day, so the next successful QSO was not completed until August 23, but after that QSOs came easily and frequently. Mike made further improvements to his station as time went by through an increase of transmitter power to 120 watts, construction of a larger antenna array, and the installation of a masthead preamp.

All this means that we now complete on 23 cm at almost every attempt, and signal strengths are sometimes at conversational levels. On December 31, 2008, the 50th 23 cm contact between our two stations was completed.

There are a few lessons from all this that are worth repeating.



Photo 1: The VK1BG antennas.

First, there is the need for persistence. We endured many fruitless attempts over seven months before logging contact number one.

Second, beam heading is critical at these frequencies. Antenna arrays are very sharp, and the optimal heading

has to be (to some extent) established by trial and error, because the reflecting medium is a moving target

Third, as microwavers all well know, frequency calibration of the equipment at each end must be established. We did it by trial and error, which is not

the best way!

Finally, timing! We were attempting to use Aircraft Enhancement, and the research papers suggested enhancement times on 23 cm will be much shorter than lower frequencies. Catching these small windows was the key.

Our contacts have indeed shown that 23 cm AE openings are typically from 10 - 20 seconds, compared to 60 - 120 seconds typically for two metres. Longer openings have occurred for us (the 50th contact was a 90 second conversation), though these are much rarer.

This has been a long journey, over two years in reaching this milestone. As for so many other journeys, the joy has been in the travelling of the path and the highs and lows along the way.

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Photo 2: The VK3KH antennas

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Contest Calendar for July 2009 — August 2009

July	1	RAC Canada Day Contest	CW/SSB
	4/5 Jul	DL DX RTTY Contest	RTTY & PSK
	11/12	IARU HF Championship	CW
	11 (TBC)	Jack Fikes Memorial Contest	CW/SSB
	18/19	CQ WW VHF Contest	All modes
	18/19	DMC RTTY Contest	RTTY
	19	VK/trans-Tasman 160 Metres CW Contest	CW
	25	Waitakere (NZART) Sprint	SSB
August	25/26	RSGB IOTA Contest	CW/SSB
	2	TARA Grid Dip	PSK/RTTY
	2	Waitakere (NZART) Sprint	CW
	1/2	10-10 International QSO Party	SSB
		North American QSO Party	CW
	9/10	Worked All Europe	CW
	15/16	Remembrance Day Contest	CW/SSB/FM
	15/16	Keymen's Club of Japan Contest	CW
	15/16	North American QSO Party	SSB
	29/30	ALARA Contest	CW/SSB

Final words from outgoing editor – Phil VK4BAA....

Welcome to this month's Contesting column. As the late great Mae West once said: "Too much of a good thing is wonderful". However, this might be countered by the well-known saying: "All good things must come to an end."

I fit firmly in the latter category - my time with the AR Contesting column has come to the end of its natural course and for me at least, this 'good AR thing', must end.

Due to a recent unwanted change in personal circumstances, I have taken the necessary and somewhat unpalatable decision to call it a day and concentrate on pastures new. I have enjoyed being your humble scribe for the last couple of years and have been delighted to see first hand the rise in interest that continues unabated for VK contesting as a whole.

Do not get me wrong - I am under no illusion that this rise in interest is attributable to my short time scribbling in AR. During my term of 'office', the number of VK call signs appearing in the international contest scene has indeed increased - but it is VK contesters that

made it that way and not any cajoling by a lowly columnist such as I. In my opinion, VK has some great operators and they should not shy away from stepping into the international limelight. Nor should the evident but unfortunate 'tall poppy' syndrome be a deterrent to getting on the air and participating. I will still be contesting and hope to pen the occasional contesting related 'piece' for AR from time to time - unless I am persona non grata this is! (Ed: No chance Phil!!!)

At very short notice, AR is fortunate that my boots are to be filled by Craig Edwards VK5HRT. In a fleeting moment of madness, Craig raised his hand and volunteered to take up the AR reins and was lyrical on a monthly basis from the Contesting pulpit.

I wish Craig all the very best in his endeavours and wish to take this final opportunity to wish you all the very best of contesting luck - as long as my score is higher than yours! May you multiply often and produce a huge log. See you on the bands! 73, de Phil Smeaton VK4BAA.

And an Introductory few words..

Hi everyone. Firstly I can only echo the positive sentiments and good wishes I have seen sent to Phil for his wonderful work in the contesting column for AR.

I can speak from experience that as I progressed from SWL to amateur radio operator, it was Phil's scribing about the contest scene from a VK point of view that sparked my interest in this side of the hobby. It was this section that I always flicked open first. So thanks again Phil and we all hope to receive some contributions about what VK4BAA has gotten up to during a contest as a single operator or multi effort.

Let me quickly introduce myself. I have spent 20 years of listening on the MW, 90 m, 60 m and 49 m bands for rare and exotic broadcast station DX.

In 2006 I started listening to the amateur bands and had fun over the next couple of years as an SWL. In 2008 I obtained my Foundation licence and then over the New Year I upgraded to my standard call VK5HRT. My main interest is contesting and I have decided

to commit myself to as many events in 2009 as I can.

It started with the John Moyle Field Day, then CQWW WPX SSB, Trans Tasman 80 m, CQ-M and now the new VK Shires. My XYL already thinks that I am particularly odd with this 'radio thing' that I do.

So my suggestion to her at the start of the year that I require around 15 weekends in 2009 to lock myself away from regular society and compete in radio sport and use a handful of annual leave days on a Monday to recover from the 'big 48 hour international events'

sent her weirdness meter off the charts.

As Black Adder proclaimed, "I have a cunning plan." I reasoned that by editing this column, it gave me a legitimate excuse to shut off from the real world for 12-48 hours every 4-6 weeks to write for AR from an active contender point of view. Needless to say she saw straight through that plan before I finished the sentence.

But I had already told Phil VK4BAA and Peter VK3KAI that I would do the column, so here I am.

I am only new to contesting, so I really want to make this column interactive and

hear from as many people as possible. I strongly invite you to write in and send in your upcoming contest plans, stories about funny, annoying and strange contest experiences or anything related to this wonderful radio sport.

It does not matter if you are a casual operator who gives people a few numbers on a Sunday afternoon or if you have been preparing for weeks and intend to run two days on no sleep, your contribution is greatly appreciated. It can be a sentence, paragraph or a full blown short story, I would love to receive it, remember photos are great too.

John Moyle Memorial National Field Day 2009 Results

The full results and run down of this year's event are already available and hot off the press – well done to Denis Johnstone VK4AE/VK3ZUX for getting these out so fast! (Ed: Brief results were published last month, but I will allow Craig some latitude!) I thoroughly enjoyed myself during this event and there was lots of action on 20 m and 40 m, and 80 m was not too bad.

I found in VK5 that 10 m and 15 m were dead and only made three QSOs to VK4 on those bands. I have given the top three scores from each section and the full results and description is at www.wia.org.au/members/contests/johnmoyle/

24 hours Portable – Multiple Operator – All band All mode

VK3ER	4573 points
VK2SRC	3291 points
VK2MA	1982 points

24 hours Portable – Multiple Operator – All band phone

VK3CNE	2364 points
VK4WIS	2256 points
VK2HZ	1771 points

24 hours Portable – Multiple Operator – VHF phone

VK3FRC	3004 points
VK3UHF	2587 points
VK3JTM	2469 points

24 hours Portable – Multiple Operator – HF All mode

VK2AWA	3774 points
VK4IZ	2758 points
VK2BTW	402 points

24 hours Portable – Multiple Operator – HF phone

VK2AWX	1162 points
VK2AOJ	1096 points
VK1LW	1000 points

The President's Cup honours went to the great efforts by the team of VK3ER at the Eastern and Mountain District Radio Club.

The total number of logs received was 123 which was up from last year's 104. The contest organisers attribute this to the increased number of home category stations submitting logs which as they state is not in the spirit of the contest to promote portable operation.

I was one of those home stations as my non-mains power source went AWOL at the last minute and was unavailable. However I did drive two hours and set up portable antennas for the event. It looks like I will be moving to the Northern

24 hours Portable – Single Operator – All band phone

VK4OE	2057 points
VK2DLR	208 points

24 hours Portable – Single Operator – VHF phone

VK3DAG	1510 points
VK1DA	1201 points

24 hours Portable – Single Operator – HF phone

VK4HAM	854 points
VK5MFW	836 points
VK6ZN	394 points

24 hours Portable – Single Operator – HF digital

VK1WJ	30 points
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6 hours Portable – Multiple Operator – All band phone

VK3AWS	1119 points
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6 hours Portable – Multiple Operator – HF phone

VK5LZ	238 points
VK7WCN	120 points
VK4WIM	118 points

Territory by the time you receive this magazine, so it will be great operating portable in VK8 for JMFD 2010.

Many competitors suffered the wrath of stormy weather which limited and/or prematurely ended many operations. All portable stations that were not in the top three in their category still received a participation certificate to reward their efforts. Twelve Foundation licence operators entered and all received certificates to encourage them to get the contesting bug. Again there was a solitary SWL entrant, this time from New Zealand. I was the lone SWL entry last year and then obtained my licence a few months later!

6 hours Portable – Single Operator – All band phone

VK4ADC	581 points
VK5AGZ	550 points
VK2FDMB	168 points

6 hours Portable – Single Operator – VHF phone

VK5ZT	252 points
VK2FKAM	210 points
VK1PE	14 points

6 hours Portable – Single Operator – HF phone

VK3HJA	290 points
VK4EV	202 points
VK2IO	154 points

24 hours Home Station

VK4VDX	633 points
VK5HRT	582 points
VK2HBG	544 points

6 hours Home Station

VK2KDP	255 points
VK2DAG	196 points
VK3XOS	158 points

Shortwave Listener

ZL2AYZ	230 points
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BERU 2009 results

The results of the 2009 BERU are in and Team Australia ended up in second spot with our neighbours across the pond in New Zealand taking fourth. The 'Rest of the World' team took the gold. Team Australia was made up of VK6LW, VK2BJ, VK2NU, VK6HD, VK6BN, VK2KM, VK6VZ, VK7GN, VK4BUI, and VK4XA. Well done guys. The Commonwealth Medal was won by Russ Coleston VK4XA who is now aged 96. This is how the VK individuals fared (* 12 hour entry):

Open Entry

15 th VK6LW	5990 points
26 th VK2BJ	5275 points
43 rd VK2NU	4225 points
47 th VK6HD	4120 points
50 th VK6BN	4080 points
51 st VK2KM	4040 points
52 nd VK6VZ	4020 points
56 th VK7GN	3810 points
57 th VK4BUI	3720 points
74 th VK4XA	2595 points
87 th VK6AJ	2135 points
111 th VK8AV	1480 points
112 th VK5SW*	1460 points

Restricted Section

17 th VK9AA*	2090 points
29 th VK6HG*	1705 points
32 nd VK5MAV	1645 points
44 th VK2EL*	1105 points
61 th VK6RZ*	730 points
71 th VK4TGL*	500 points

HQ Stations

6 th VK4WIA	2550 points
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JIDX 2008 Phone results

Fourteen VK operators actively participated in the 2008 JIDX phone contest. VK4NEF won top honours in the SOSB 28 MHz low power category, VK7ZE came 2nd in the SOAB high power category and VK4HAM took 5th place in the SOSB 14 MHz low power category.

Certificates were also received for the category winners for Australia, namely VK7ZE (SOAB high), VK4XES (SOAB low), VK4NEF (SOSB 28 low), VK4FJ (SOSB 21 low) and VK4HAM (SOSB 14 low). Congratulations guys. VK scores were:

VK7ZE*	SOAB	90316 points
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VK4HG	SOAB	3500 points
VK3AVV	SOAB	1064 points
VK4XES*	SOABL	4585 points
VK3MDX	SOABL	1457 points
VK2HAQ	SOABL	1305 points
VK6FDX	SOABL	1288 points
VK4VCC	SOABL	315 points
VK3ZPF	SOABL	16 points
VK3ZGP	SOABL	9 points
VK4NEF*	SOSB 28L	9724 points
VK4FJ*	SOSB 21L	3640 points
VK4HAM*	SOSB 14L	3430 points
VK4VDX	SOSB 14L	345 points

2009 CQWW WPX

SSB and Russian DX Contest claimed scores

Thanks to Martin Luther VK7GK for sending in some of the latest info to me. The claimed scores for the CQWW WPX SSB 2009 contest are available so check them out at www.cqwpw.com/claimed_2009_wpx_ssb_scores.htm. The claimed scores for the 2009 Russian DX Contest are also on line now at www.rdx.org/results/2009/results.asp

Trans Tasman

The 80 m SSB and 160 m SSB Trans Tasman events have been and gone. I competed in the 80 m event and the band was alive and kicking with activity. Despite high noise levels experienced by most participants, there was never a dull moment.

I am very thankful for the rule whereby you take your best five one hour blocks and delete the worst hour of scoring. During my second hour I noticed that all of a sudden I was getting nowhere on my run frequency and then someone jumped on my spot and took over. OK, that was annoying, but not unheard of. So I started searching and pouncing for some bonus prefixes with no luck.

Then when I could not even work strong stations I knew something was up. My SWR was way out of whack and I was not transmitting much power at all. A quick look in the dark at my vertical with 60 radials revealed that a large old dog was wondering around and using my ground mounted vertical as a bum scratching post.

So some running repairs to the feed line attachment had me up and running again. So fortunately I could dispose of my horrible 2nd hour score!!

Jack Files

This contest is run in honour of the late Jack Files, a long-serving VK4 WIA councillor. Full contest rules and information is available at www.wia.org.au/members/contests/jackfiles/. Briefly: **Object:** To work as many other amateur stations, and particularly as many different VK4 Council areas and as many different states and territories as possible within each one hour block of the contest.

Date: Saturday, 11th of July 2009

Time: 0800 - 1400 UTC in six one-hour blocks for the purpose of duplicate contacts.

Band: 80 metres only. Use 3500 - 3700 kHz to put all licence grades on an equal footing.

Modes: Either CW, SSB or All Modes (To qualify for all mode a minimum of 5 contacts must be completed for each mode)

Categories: Single Operator; Club Station (each category can be a mobile or portable station)

Exchange: Non-VK4 stations will send RS(T) plus serial number starting at 001 and incrementing by one for each contact. VK4 stations will send RS(T), serial number and two-letter shire or town code for purposes of multipliers.

Score: One point per contact

Multipliers: Each VK4 Council area counts as a multiplier only once over the entire duration of the contest. All participants may also count the first contact in each state or territory as a multiplier and these may be counted within each hour block during the contest.

Final Score is total QSO points multiplied by the total number of multipliers.

Repeat Contacts: In order to make best use of the band, stations may be contacted once in each hour on each mode. Repeat contacts with stations may be counted within the same one hour block only if the station is mobile and crosses from different shires, towns, states or territories to another. All repeat contacts must not be consecutive.

Logs must show full details of all QSOs and must be accompanied by a Summary Sheet showing operator's name; address; callsign; category and mode entered; claimed score and a declaration that the rules and spirit of the contest were observed.

Send logs by mail to Jack Files Contest

Manager, 26 Kerr St. Park Avenue, Nth Rockhampton QLD 4701. Logs may be sent by e-mail in text format to: vk4ajs@wia.org.au

Closing date for all entries is 28th of August, 2009

Certificates will be awarded to the top scorers in each mode in each VK State, ZL, P29 and any DX country (i.e. country outside VK, ZL or P29). As well there will be a certificate awarded to the overall highest scorer who will be declared overall contest winner. The only stipulation is that the overall winning operator must be a VK amateur.

2009 IARU HF World Championships

OK boys and girls, this is one of the big contests of the year so strap yourselves in for 24 hours of CW and SSB excitement on 10, 15, 20, 40 and 80 metres from 1200 UTC Saturday July 11 until 1200 UTC Sunday July 12. I will not include the rules here, I recommend you go to www.arl.org/contests/rules/2009/iaru.html

Do not forget that the best of the best from around the world, including a team from VK/ZL, will be competing in the World Radiosport Team Championship in Russia during the contest. It is very much like a mini-Olympics within a contest. The full details are at www.wrtc2010.ru

The teams should be more even than any past WRTC as they will be very much physically closer together, unlike past WRTC when some teams were inland teams and others on the water. It is a field day arrangement as competitors operate in a tent from a generator power supply. Each two person team will have a 10/15/20 tribander and inverted Vs for 40 and 80 and a maximum of 100 watts.

The rest of us can have a wonderful time competing in the IARU HF World Championship. As I write this column in late May, it appears conditions are getting better on HF. Could it be that Solar Cycle 24 has finally stopped snoozing so that we can again enjoy DXing? It all looks good for a great contest this weekend.

It is a tricky situation as I will be holidaying in Townsville to attend the V8 Supercar race in the streets FNQ. But again, a cunning plan. I will be packing the Icom IC-706MKIIG, ATU, balun, coax, dipole wire, 2 helical whips and a magnetic whip mount. So hopefully in between family commitments I can operate on 40 m and 20 m at 1200 to around 1400 on Saturday

night, 1900-2200 Sunday morning and then 0700-1200 Sunday night.

I will not be setting the world alight with my score, but hopefully I can boost the 20 m and 40 m QSL tallies. Before the event I will watch my copy of WRTC 2002 Finland event to really get into that IARU HF World Championship spirit!...I do not know why my MYL says I am a weirdo.

And here are some more details from the WIA Secretary:

IARU HF World Championship Contest

Geoff Atkinson VK3AFA
IARU-RJ Liaison Officer

The 2009 IARU HF World Championship Contest takes place the second full weekend of July, beginning 1200 UTC Saturday and ending 1200 UTC Sunday (11-12 July 2009).

Both Single and Multi operator stations may operate the entire 24-hour period.

All licensed amateurs worldwide are eligible to participate in this contest. The objective of this contest is to contact as many other amateurs, especially IARU member society HQ stations, around the world as possible using the 160, 80, 40, 20, 15 and 10 meter bands. Multipliers are the total number of ITU zones plus IARU member society HQ stations worked on each band (not mode).

Last year, there were 10 societies participating in the contest from Region 3, and it is hoped to hear more HQ stations from our region this year.

IARU officials represent a maximum of four multipliers per band (AC, R1, R2 and R3). Our two regional AC members have the option of using "AC" or our regional designator "R3".

Regional EC members who are not AC members must use our designator "R3".

VK7WI will be on air as an HQ station operating in Zone 59.

Jay S. Oka JA1TRC, Secretary, IARU Region 3 is planning to participate in this contest and hopes to contact as many as possible during the contest.

You can find the complete rules at: <http://www.arl.org/contests/rules/2009/iaru.html>

Remembrance Day

Just a reminder: the Remembrance Day contest will be on from 0800 UTC Saturday 15th August until 0759 UTC Sunday 16th August. This contest commemorates those amateurs who died during World War

II and encourages friendly participation between VK, ZL and P29 operators. Full rules in next month's edition.

With this contest, you have the opportunity to operate on ALL bands (except WARC), so it is for the aficionados of various metre bands. I will be entering as a single operator on HF, with fingers crossed, from somewhere in VK8 land.

Oceania – less than 3 months away

By the time you read this, the two Oceania contest weekends will be only 3 months away.....no I am serious!! The SSB weekend is October 3-4 and the CW weekend is October 10-11. I am just looking in my little contest diary, before I do Oceania SSB, there is IARU, IOTA, Remembrance Day, RDA, All Asia SSB, WAE SSB and SAC! Oh boy, the big contest season is definitely on its way.

You must check out this website: radio-sport.net

Have you visited the radio sport website? It is the brainchild of Jamie NS3T and is modelled on a newspaper "sports" page, except it is all about the contesting hobby. You can subscribe to the site and receive an email update every time a new article comes out. Jamie has been supportive of the VK Shires contest and has published our activity. So please visit this great site at www.radio-sport.net

Here's my last over before going QRT for this month...

I hope everyone had a great time during the recent Winter VHF-UHF Field Day and the inaugural VK Shires contest. As this column goes to AR on the 1st of each month, I write this just prior to the VK Shires event. I am particularly excited about this event and hope to write a glowing article with 24 hours full of VK and DX logs.

I will be operating from CO5 in the beautiful Coorong from a couple of tents by the water with a portable 2 element full sized Yagi for 20 m and ground mounted vertical for 10/15/20/40/80 with 60 radials.

Fingers crossed everything works..... I am sure Murphy will pop his head up for a bit of fun. If you want to send in a contribution, please do it by the last week of the month because on the first it flies through cyberspace to AR HQ.

73 Craig VK5HRT vk5hrt@yahoo.com.au **ar**

The tale of a valve

Christine Taylor VK5CTY

How a rare, and now very collectable, part of the WW II winning Chain Home Radar system came to light.

Peter VK3RV was at the AHARS (Adelaide Hills Amateur Radio Society) Buy and Sell when he heard two men discussing their WW2 experience at a radar station in Western Australia.

He asked, "Do either of you remember a VT98 valve at your radar station?"

"I remember it very well," replied Phil VK5NN, echoed by Ron VK5RV a moment later. They could describe the valve well enough.

"Just a minute," said Peter. And he went out to his car and brought back the very valve they had been talking about.

In 1956 Peter was helping his Dad to sort scrap metal (collected by his grandfather, an inveterate 'job lot' buyer at auctions) part of which was a complete radar transmitter. Peter extracted what he might be able to use to further his interest in radio, including two VT98 valves.

Recently Peter researched the valve and found that it had been used in Britain's Chain Home Low coastal air defence radar network (or Chain Overseas Low [COL] flying radars). These were a line of multiple masted aerials on the east coast of England, built in the thirties. The Germans had no idea of the purpose of these aerials until they discovered that Britain seemed to find their attacking aircraft even before they were visible.

Phil and Ron could tell him more specifically that the valve Peter was showing them had definitely been used in the COL Mark 5 radar transmitter

They had both been involved with these valves in radar units during the war. Peter was delighted as he had never met anyone who had used the devices in real life.

The characteristics of the valve (a pulse transmitting triode) are:
Length 330 mm (about 13 inches)
Diameter 90 mm (about 3.5 inches)
Filament current 12.6 volts at 58 amps
Grid current 30 amps
Single tube 150 kW pulsed at 200 MHz
Pulse width 2.5 to 4.5 μ per sec, PRF 400 pps
Range at height of 152 metres (500 foot) — 180 km (110 miles)
Aerial used 5 bays of 4 stacked dipoles
Polarisation horizontal
The valves were used in a push-pull circuit.

In the transmitter shown note that the valve is upside down compared with the way Phil and Ron are holding it — that is the orientation in which it was used.

Later a number of these valves, as parts of 'to be built' radar stations were sent to Singapore. They arrived just too late so the ship carrying them was diverted to Western Australia where four radar stations were built — Geraldton, Rottenest Island, Cape Naturaliste, and Albany. Subsequently in December 1941, Australia ordered 32 transmitters, which were used all around the coastline.

Phil was made CO of one of those first radar units — at the age of 20, straight out of radar school!

Ron was the technician on the radar stations at Cape Jervis in SA, and later in New Guinea.

Phil tells us that the CSIRO, NSW Railways and the Gramophone Company developed the smaller units using smaller valves, which were nicknamed 'micro pups'. And it was at Milne Bay in New Guinea, where one of these Australian developed transmitters was installed, that Phil and Ron met each other.

Phil also says that although the VT98 was not originally intended for use at VHF some

clever circuitry made it effective at these frequencies. During the war years the range of these radars improved from 320 km (200 miles) to 2720 km (1700 miles) and could detect ships as well as planes. (The navy did not believe them until given proof!!)

More information on the VT98 is available in various IEEE journals.

A VT98 was offered for sale on eBay in 2000 for \$15,000.

Ed Note: There are excellent photos of the valve at <http://www.radarphotos.co.uk/mob/chl/chl3.htm>



Phil VK5NN and Ron VK5RV, with the VT98 valve.



Fig. 5.—C.H.L./G.C.I. transmitter.

An illustration from an old manual shows a VT98 shown in a piece of equipment

DX - News & Views

John Bazley VK4OQ

email: john.bazley@bigpond.com

New IRCs now on sale

Do not forget to check your IRCs before the end of the year!

New International Reply Coupons (the "Nairobi model"), will go on sale from the 1st July 2009, and are expected to remain valid until 31st December 2013. They will replace the current IRCs which must be redeemed before the end of the year, as their expiry date is 31st December 2009.

After a recent slight rise in the Sunspots, we appear to be going back to the old level! In spite of the poor conditions it is amazing the DX that has been worked, and during the coming months activity is promised from some further rare entities.

We now have more details on the anticipated DXpedition to **Glorioso Island**. Didier F5OGL informed 'The Daily DX' that logistics problems were the cause of the numerous postponements. This has been very frustrating for the team once all the necessary authorizations were in hand. So now the DXpedition to Glorioso is scheduled for July 9th to July 28th.

Among the French military ham radio operators will also be members of The French Foreign Legion and a military TV documentary press team. The video team's mission is to film the "entire ham DXpedition". The movie will be in the French language as well as English.

The crew includes: Freddy F5IRO, whose preference is CW. He was an operator on the TO4E DXpedition to Europa in 2003. Yves-Michel F5PRU prefers digital and CW modes. Philippe F4EGS will be responsible for the logistics in liaison with the French Air Fleet. Sylvain F5TLN will deal with the SSB side of the operation. The participation by Jean-Marc F5RQQ is pending.

It emphasised that this trip is not a DXpedition as their main activity will be to assist with numerous maintenance jobs on the island. Their July trip to Glorioso is a military operation first. Their free time is subject to local events that could take place in this part of the Indian Ocean.

The amateur radio team will take with them three complete stations including

amplifiers. They will have Spiderbeams for the higher bands and verticals for 40, 80 and 160 metres.

The team realizes that July is not the best time for Glorioso propagation on the lower bands, especially on 160 metres, however they do plan to operate on Topband. Activity is planned for CW, SSB, PSK31 and RTTY.

During the team's stay on the island, they plan to participate in the IARU HF World Championships and the RSGB IOTA Contest and perhaps some others.

As was the case with the Europa 2003 DXpedition, one of the main goals while on Glorioso will be to preserve the fauna, the flora and the environment.

The Glorioso DXpedition team will have on-line logs (<http://glorieuses2008.free.fr/searchlog.php>), which are expected to be updated daily by Rafik F5CQ, who is also the Webmaster.

The QSL manager for this operation will be Didier F5OGL, who will accept cards both direct to his CBA or via the French QSL bureau (REF-Union Bureau).

DXpedition sailors Mike KM9D and Jan KF4TUG have now departed Honiara, the capital city of the Solomon Islands (H44), as they head for **New Georgia Island (OC-149)**. They should be active from there when you read this item. Mike and Jan were named DXpeditioners of the year at the SWODXA DX Dinner in Dayton. Congratulations to them!

Scott KC0KHA will be on a work assignment in **Mongolia**, from May 26th to July 31st. He is a biologist and plans to be QRV as JT1N and JT4N in his spare time. He will use JT4N while in the Gobi desert from June 10th to July 20th. Scott will have a Yaesu FT-897D as well as a

Honda generator while in the desert.

A home brew vee beam and G5RV will be used as well as an assortment of VHF and UHF antennas for possible satellite APRS communications. He says to listen for him on 20 metres SSB and PSK during evenings and mornings in the western hemisphere. "Amateur radio is supporting this US National Science Foundation funded research expedition to the Gobi of Mongolia", says Scott. QSL via KC0KHA.

Peter ET3BN will be in **Addis Ababa, Ethiopia** for the next few years, QRV on CW and SSB. For 80 he has a delta loop. For 30, 17 and 12, a two-element Yagi; and for 20, 15 and 10, a 3-element; for 6 m a log periodic, but nothing for 160 and 40 so far. QSL to his Ethiopian address, Dr. Peter Haferkorn, P.O. Box 150194, Addis Ababa, ETHIOPIA. Peter also holds the callsign DM2BBN.

TK/F8BBL/grp will be vacationing on **Corsica, EU-014**, August 1 to August 15. He will have his FT-817 and MP1 antenna. August 8 he will climb to the top of Punta di Buturetu, which is 870 metres above sea level. Look for him at about 1000 Z on 7032, 10118 or 7096. He may go to Sanguinaires Island the second week if he can find a boat and the weather and seas cooperate. QSL to his home call, direct or bureau.

IY0NGM will celebrate the 100 years since Marconi won the Nobel Prize in Physics. Look for this station from the ARI Frosinone in Italy, the IQ0FN group, April 25-July 20th.

Starting July 29th, W9CGI will be QRV from **Grand Cayman Island (NA-016)**. No callsign was mentioned. Activity will

Continued at foot of page 47

A returned QSL card stirs thoughts of change

Today I received a letter from North Carolina and inside the envelope was a short note together with two QSL cards, one of which was mine.

It was dated the 11 April 1973 and was for a contact with a K4PFK. I cannot readily remember the QSO as it was 36 years ago and I must have been operating in my first ham shack, underneath the garage. I had a Yaesu FT-200 to a G5RV antenna, running a modest 100 watts PEP.

I was originally licensed two days before Christmas 1971 but I did not start until mid January 1972 and my first QSO was with Russ VK3AIX and I was so nervous and I recollect that he told me to go QRT. I think he thought I was a pirate.

Fortunately my next QSO was with Ron VK3AKC who calmed me down and Trevor VK7TB happened to be in his shack at the time. Ron was well-known here in VK7 as he was an EME pioneer and was a regular on 2 metres. Thanks to Trevor I got my first QSL card just two days later. Sadly I lost it when I made the move here to this QTH.

This led me to think about my early

days as an SWL. I vividly recollect hearing the BBC General Overseas Service on my father's Philips 2262 dualwave radio in the depths of a 1956 winter. Dad was a teacher and was working at the Ashley Detention Centre, just outside Deloraine. We lived in a purpose built cottage and the antenna was a coil of wire bundled up against the side of the wall. It worked. London then sounded very differently from today. Announcers then spoke in Oxbridge accents and the British Empire was still in its heyday.

Today's announcers have many different accents, making it harder to comprehend. The Beeb as it is affectionately known no longer has the authority it once had. It was so easy to hear the chimes of Big Ben. The BBC was dominant on both 7150 and 9410 from Daventry from 0600 to 0730. It was so steady that the ABC used to relay "Radio Newsreel" at 4:15 pm each weekday on domestic stations.

15070 was another regular channel, especially in the summer months and this continued into the mid 1980s. I believe that they were forced to quit because they

were outside the allocated segment for broadcasting in Europe. The Daventry site has long been dismantled and management of the senders has passed out of the BBC to a private company based in France.

The Beeb is still on shortwave, just. They no longer broadcast to traditional areas such as Europe, North and South America and the Pacific, yet are still heard to Africa and some parts of Asia. The BBC will shortly begin broadcasting some language services well away from London and Bush House, where they have been based since 1940. I believe programs in Hindi and Bengali will come from Delhi. Also English and French programming for Africa may be based in West Africa. Labour costs were given as the reason for this proposal and naturally upset workers based in London.

Radio France International in Paris is also undergoing restructuring. The government wants to axe several hundred positions and further curtail shortwave programming. This naturally led to a protracted industrial dispute which disrupted programming for a while.

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DX *Continued from previous page*

be listened on 12 and 17 metres using PSK31 and SSB until August 10th. He will be running 50 watts to a vertical. QSL via his home call.

A group of operators, including VK2IR, VK3FY, VK3FGRC, VK3FT, VK2PGR, VK3TZ, VK2RF and VK5MAV from the Hellenic Amateur Radio Association of Australia will be active as VK9NI from **Norfolk Island (OC-005)** from July 22nd until July 29th, IOTA Contest included. They plan to be active with multiple stations on 160-6 metres CW, SSB and RTTY. QSL via W3HNK. Further information can be found at <http://vk9ni.com>

Robert LA9QNA will be in

Longyearbyen, Svalbard and QRV as JW9QNA from July 17th to July 22nd. He will be on 20 metres RTTY and participating in the CQ WW VHF Contest from the JW5E station. QSL via LA9QNA.

Bill NCIL (DXCC Manager) reports that he has emailed Vasil LZ1CL, the QSL manager for SN/LZ1QK, asking to see paper work. For now SN/LZ1QK, who has been operating from Nigeria since late last year, is on hold as far as DXCC credit is concerned.

And finally:

A new book by Roger Western G3SXW: author of "Up Two, Adventures of a DXpeditioner" contained descriptions of travels to many exotic corners of the globe but some readers felt the need for the human touch: "I want to hear

what it really felt like, what you really experienced", so his new book titled "DX Delights - Tales of Travels with my Radio" deals with the human side of DXpeditioning. This 130+ page illustrated and signed book provides DXpeditioning entertainment and reading pleasure for all. Send cash or sterling cheque to: Roger Western G3SXW, 7 Field Close, Chessington, KT9 2QD, England Price: GBP £12, USD \$20, Euros 15. Or by PayPal: g3sxw@btinternet.com

Special thanks to the authors of *The Daily DX (W3UR)*, 425 DX News (1J1QJ) and QRZ.DX for information appearing in this month's DX News & Views. For interested readers you can obtain from W3UR a free two-week trial of The Daily DX from www.dailydx.com/trial.htm

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Six-monthly review of operational OSCARs

This month I present an updated review of the operational OSCARs and other satellites using amateur satellite service bands. All satellites listed here have been heard during March-May 2009 by myself.

Satellites added or revised since last review: AO-19, IO-26, FO-29, CO-55, RS-15, RS-22, RS-30, STARS, PRISM, KKS-1, PharmaSat and CP-6.

Failed satellites since last review: AO-16

The names of the satellites are given as OSCAR number, full name and (NASA catalogue number). Modes are represented by frequency bands: H=10 m, V=2 m, U=70 cm, L=23 cm, S=13 cm in order of uplink/downlink.

Linear transponders use CW and SSB. With the exception of AO-7's V/H transponder, all linear transponders are 'inverting' types and use LSB for the uplink and USB for the downlink. For AO-7 mode V/H use USB for both links. Most of the activity is in the middle of the passband.

Telemetry decoding programs for several satellites are available from Mike Rupprecht's website at <http://www.dk3wn.info/software.shtml>

Please note an error in last month's note on ANUSAT (new digital satellite launched). The launch date was 20/4/09, not 20/9/09.

AO-7 AMSAT OSCAR 7 (7530)

Launched: 15/11/1974

Status: Operational only when it is in sunlight. It may be in any mode. During non-eclipse periods it will alternate between modes V/H and U/V every 24 hours. Beacons are not always on. Currently AO-7 is going through an eclipse period that will end on 19th July 2009. Most of the time it will switch on mode U/V. After the eclipse period AO-7 will remain in full sunlight until June 2010.

Mode: V/H (old mode 'A'), linear, non-inverting.

Uplink: 145.850-145.950 MHz,
Downlink: 29.400-29.500 MHz

Beacon: 29.502 MHz CW.
Occasionally the 435.106 MHz CW or RTTY beacon may be on.

Mode: U/V (old mode 'B'), linear, inverting.

Uplink: 432.125-432.175 MHz,
Downlink: 145.975-145.925 MHz

Beacon: 145.972 MHz CW at 10 or 20 wpm, intermittent operation.

Check the online log for current status at <http://www.planetemily.com/ao7/main.php>

AO-16 PACSAT (20439)

Launched: 22/1/1990

Status: Non-operational. Due to longer eclipse periods a low temperature sensor turns off the 70 cm transmitter after a few minutes. It will be several years before AO-16 returns to full sunlight and can be used regularly.

AMSAT-VK

AMSAT Co-ordinator:

Paul Paradigm VK2TXT

email coordinator@amsat-vk.org

Group Moderator: Judy Williams VK2TJU

email secretary@amsat-vk.org

Website: www.amsat-vk.org Group site:

group.amsat-vk.org

About AMSAT-VK

AMSAT-VK is a group of Australian amateur radio operators who share a common interest in building, launching and communicating with each other through non-commercial Amateur Radio satellites. Many of our members also have an interest in other space based communications, including listening to and communicating with the International Space Station, Earth-Moon-Earth (EME), monitoring weather (WX) satellites and other spacecraft.

AMSAT-VK is the primary point of contact for those interested in becoming involved in amateur radio satellite operations. If you are interested in learning more about satellite operations or just wish to become a member of AMSAT-Australia, please see our website.

AMSAT-VK monthly nets Australian National Satellite net

The net takes place on the 2nd Tuesday of each month at 8.30 pm eastern time, that is 9.30 Z or 10.30 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater on 148.850 MHz

VK2RIS Saddleback repeater on 146.975 MHz

VK2RBT Mt Boyne Repeater on 146.675 MHz

In Victoria

VK3RTL Laverton, Melbourne, 438.680 MHz

FM, - 5 MHz offset

In the Northern Territory

VK8MA Katherine 146.700 MHz FM

In South Australia

VK5TRM Loxton on 147.125 MHz

Operators may join the net via the above

repeaters or by connecting to EchoLink on either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9509. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email.

AMSAT-VK HF net

Members and interested parties are also reminded of our HF net which is held on the 2nd Sunday of each month. See www.amsat-vk.org for details.

Become involved

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started. You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night.

Should you wish to join AMSAT-VK, details are available on the web site or sign-up at our group site as above. Membership is free and you will be made very welcome.

LO-19 LUSAT (20442)

Launched: 22/1/1990

Status: Semi-operational. LO-19 has been reported as non-operational but to quote Mark Twain, "The rumours of my death have been greatly exaggerated". LUSAT has its CW telemetry beacon operating continuously. The telemetry shows LUSAT's solar panels and batteries are in a good state of health. The BBS and digipeating operations have not been usable for many years.

Mode: -U CW telemetry at 12 wpm with 45 second gaps between frames.

Beacon: 437.125 MHz

<http://www.amsat.org.ar> (In Spanish)

IO-26 ITAMSAT (22826)

Launched: 26/09/1993

Status: Semi-operational. IO-26 is in Master Boot Loader (MBL) mode. It transmits continuous BPSK carrier with the occasional telemetry packet.

Mode: -U 1k2 BPSK

Beacon: 435.790 MHz (Note: this has shifted from the original published frequency)

<http://www.amsat.dk/oz7sat/tlm/view.php?sat=io26>

FO-29 FUJI-OSCAR 29

JAS-2 (24278)

Launched: 17/8/1996

Status: Operational as linear transponder. Most activity is around 435.850 MHz. The BBS and digipeater operation have not been used since 2003.

Mode: V/U linear, inverting.

Uplink: 145.900-146.000 MHz, Downlink 435.900-435.800 MHz

Beacon: 435.795 MHz CW telemetry.

<http://www.ne.jp/asahi/hamradio/jepel/index.htm>

GO-32 Gurwin TechSat-1B

(25397)

Launched: 10/7/1998

Status: Operational but difficulties are reported occasionally. Since the on-board computer crash on 30/3/2009 GO-32 has been sending telemetry and reloading operations were in progress.

Mode: V/U for APRS, 9k6 FSK

Uplink: 145.930 MHz, Downlink: 435.225 MHz

Mode: V/U for PacSat BBS, 9k6 FSK

Uplinks: 145.850 MHz, 145.890 MHz, 145.930 MHz, Downlink: 435.225 MHz

Mode L/U for PacSat BBS 9k6 FSK
Uplinks: 1269.700 MHz, 1269.800 MHz, 1269.900 MHz, Downlink: 435.225 MHz

BBS callsign: 4XTECH-12

Beacon callsign: 4XTECH-11

<http://www.amsat.org/amsat-new/satellites/satInfo.php?satID=14&retURL=/satellites/status.php>

NO-44 PCSAT (26931)

Launched: 30/9/2001

Status: Operational only in full sunlight. One solar panel and the batteries are not functioning.

Mode: V/V 1k2 AFSK packet digipeater

Uplink: 145.827 MHz, Downlink 145.827 MHz

<http://pcsat.aprs.org>

SO-50 SAUDISAT-1C

(27607)

Launched: 20/12/2002

Status: Operational

Mode: V/U FM voice with 67 Hz CTCSS tone

Uplink: 145.850 MHz, Downlink 436.795 MHz (but may switch to 436.800 MHz).

To switch the transmitter on you need to send a few seconds of 74.4 Hz CTCSS tone.

The order of operation is thus (allow for Doppler as necessary):

1) Transmit on 145.850 MHz with a tone of 74.4 Hz to arm the 10 minute timer on board the spacecraft.

2) Now transmit on 145.850 MHz FM voice using a 67 Hz CTCSS tone to access the transponder.

3) Sending the 74.4 Hz tone again within the 10 minute window will reset the timer. Users have reported difficulties.

AO-51 AMSAT-OSCAR-51

ECHO (28375)

Launched: 29/6/2004

Status: Operational

Mode: AO-51 is a versatile satellite that can be configured to operate in many modes, often two at a time. It can use FM and SSB voice, 9k6 and 38k4 FSK packet as a BBS or digipeater. It

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115 John Street
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7 to 30 MHz log-periodic Yagi/boom 13.8 m, 80 mm diam, longest ele 13.8 m	\$call
Log periodic 7 ele 13-30, 6.5 m boom	\$813
NEW 160 m Vertical SUBURBAN	\$355
M B Vert auto switch 10/80 m	\$345
40 m linear loaded 2 ele 6.4 boom	\$574
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6 m 8 ele 12 dB gain	\$408
Top loaded 160 m vert	\$474
NEW 2 m/70 cm/10/17 elements Yagi beam antenna N-CON	\$261

Guyed Masts

21 metres 13 metres
Winch-up and tilt-over aluminium and stainless steel
three sided construction. Auto brake winches

Free standing masts
9.5 metres

New Baluns

1-1 to 16-1 to 3 kW



03 9773 3271
Mob 0419 542 437

has 3 transmitters (two on 70 cm and one on 13 cm), four 2 m receivers and a wideband receiver that has been used on 10 m and 23 cm.

The control team issues a monthly bulletin on modes and frequencies AO-51 will be using.

Default voice mode: V/U FM voice

Uplink: 145.920 MHz, Downlink 435.300 MHz (no PL tone required)

Default digital mode: L/U 9k6 FSK

Uplink: 1268 700 MHz, Downlink: 435.150 MHz

Beacon: 435.150 MHz 9k6 FSK

<http://www.amsat.org/amsat-new/echo/CTNews.php>

VO-52 HAMSAT (28650)

Launched: 5/5/2005

Status: Operational. VO-52 has two linear transponders that use nearly the same passbands. The Indian transponder is normally in use. Most activity is around 145.900 MHz.

Mode: U/V linear inverting.

Indian transponder:

Uplink: 435.220-435.280 MHz, Downlink 145.930-145.870 MHz

Beacon: 145.936 MHz continuous carrier

Dutch transponder:

Uplink: 435.225-435.275 MHz, Downlink 145.925-145.875 MHz

Beacon: 145.860 MHz CW 12 wpm preset message

<http://www.amsat.in/hamsat.htm>

Note: FM operation on VO-52 is permitted for QRP/handheld. In India, SSB gear is not very common and the operations team have suggested that FM operators can use this bird. If you are planning to work FM, please use another part of the passband e.g. 145.920 MHz. It would be best to arrange a sked in advance, as VO-52 is rarely used in FM mode over VK/ZL. Excessive uplink power will cause the beacon to FM.

The following are mainly Cubesats. Reception reports are often well received and can result in a QSL card for your efforts. See websites for details.

An excellent website for the current status and information on all Cubesat launches is Mike Rupprecht's website at <http://www.dk3wn.info> Ralph Wallio WORPK has recently stopped providing information on the Cubesats.

CO-55 CUTE-1 (27844)

Launched: 30/6/2003

Status: Operational. From the first Cubesat launch CO-55 continues to send CW telemetry.

Mode: -/U CW telemetry

Beacon: 436.8375 MHz

http://lss.mes.titech.ac.jp/ssp/cubesat/index_e.html

CO-57 XI-IV (27848)

Launched: 30/6/2003

Status: Operational. From the first Cubesat launch, CO-57 continues to send CW telemetry. It also has an on-board camera. Pictures of the Earth can be found on the website below.

Mode: -/U CW telemetry

Beacon: 436.8475 MHz

<http://www.space.t.u-tokyo.ac.jp/gs/en/index.aspx>

CO-58 XI-V (28895)

Launched: 27/10/2005

Status: Operational. CO-58 has an on-board camera. Pictures of the Earth can be found on the website below.

Mode: -/U CW telemetry

Beacon: 437.465 MHz

<http://www.space.t.u-tokyo.ac.jp/gs/en/index.aspx>

DO-64 Delfi-C3 (32789)

Launched: 28/4/2008

Status: Semi-operational. The linear transponder has failed. The control team switched it back to science mode on 29/1/2009. Often by the time it has reached VK/ZL the transmitter has stopped, so it will be heard here occasionally. If they change it to basic mode then the telemetry will be heard over VK/ZL on most passes. The telemetry can be demodulated and decoded using software from the Delfi website.

Mode: -/V 1k2 BPSK telemetry

Beacon: 145.870 MHz (primary) or 145.930 MHz (secondary)

<http://www.delfic3.nl/index.php>

CO-65 CUTE-1.7+APDII (32785)

Launched: 28/4/2008

Status: Operational. The CW beacon is on. The mode L/U APRS digipeater has been activated during weekends using 9k6 GMSK modulation. Reports from Japanese operators have proven the digipeater works.

Mode: -/U 437.275 MHz CW telemetry.

Mode: L/U 9k6 GMSK

Uplink 1267.603 MHz, Downlink 437.475 MHz

http://lss.mes.titech.ac.jp/ssp/cute1.7/index_e.html

CO-66 SEEDS II (32791)

Launched: 28/4/2008

Status: Operational. CO-66 is a Cubesat that transmits CW telemetry, packet telemetry and a pre-recorded message of voice and SSTV. Sometimes all three can be heard during a pass over VK/ZL as it changes modes. At 450 mW output, CO-66 has the strongest signal of the Cubesats.

Mode: -/U CW telemetry, 1k2 AFSK packet and FM Digitaizer/SSTV

Beacon: 437.385 MHz

http://cubesat.aero.est.nihon-u.ac.jp/english/main_e.html

RS-series satellites

RS-15 RADIO ROSTO (23439)

Launched: 26/12/1994

Status: intermittent. The beacon only comes on when satellite is in sunlight, and is not on every pass.

Mode: -/H on/off carrier of 2-3 seconds

Beacon: 29.352 MHz

RS-22 MOZHAYETS-4 (27939)

Launched: 27/9/2003

Status: Operational. RS-22 sends CW telemetry in a format similar to previous RS-series satellites.

Mode: -/U CW telemetry

Beacon: 435.352 MHz

http://www.dk3wn.info/sat/afu/sat_rs22.shtml

RS-30 YUBILEINY (32953)

Launched: 23/5/2008

Status: Operational. Only the CW beacon has been heard over VK/ZL. Other transmission types are heard when it is in range of the control stations in Russia. It has been heard by AO-51 users when they share the same footprint.

Mode: -/U CW telemetry

Beacon: 435.315 MHz (primary), 435.215 MHz (Secondary)

http://www.dk3wn.info/sat/afu/sat_rs30.shtml

Other satellites using amateur frequencies.

ISS (25544)

Launched: 20/11/1998

Status: Operational. The International Space Station has an amateur radio station that operates in many modes. Ultimately it depends on the manning crew's activities. Voice, digital, and SSTV modes are used. Sometimes experimental modes are tried; a recent example was a 23 cm FM repeater uplink on 1269.650 MHz.

Mode: U/V crossband FM repeater.

Uplink: 437.800 MHz FM, Downlink 145.800 MHz

Mode: V/V Digital / APRS 1k2 AFSK FM

Uplink: 145.825 MHz, Downlink: 145.825 MHz

Mode: V/V FM Voice, SSTV

Uplink: (Region 1) 145.200 MHz, (Region 2/3) 144.490

MHz, Downlink: 145.800 MHz

<http://www.issfanclub.com/>

<http://www.rac.ca/ariss/>

COMPASS-1 (32787)

Launched: 28/4/2008

Status: Operational. Compass-1 has a chirpy CW telemetry beacon that is normally sent every 3 minutes. If battery voltage is low it will send every 8 minutes. COMPASS-1 can be commanded by any amateur to send telemetry on demand using DTMF codes, though the satellite may not give a response each time. Every command will give a confirmation beep on 437.275 MHz.

*35## - request a test beacon CW

*36## - request a test packet 1k2 AFSK FM (UI-Frame)

*60## - request a housekeeping frame in 1k2 AFSK FM (KISS frame)

Mode: V/U DTMF command, 1k2 AFSK

Command: 145.980 MHz, Downlink 437.405 MHz

Beacon: 437.250 MHz CW telemetry

<http://www.cubesat.de>

STARS (33498)

Launched: 23/1/2009

Status: Operational. STARS is two satellites tethered together. Both 'Mother' and 'Daughter' have CW and 1k2 AFSK packet telemetry on 70 cm. The CW beacons are on continuously.

Mode: -/U FM 1k2 AFSK

Mother 437.485 MHz, Daughter 437.465 MHz

Mode: -/U CW

Beacon: Mother 437.305 MHz, Daughter: 437.273 MHz

<http://stars1.eng.kagawa-u.ac.jp/english/index.html>

PRISM (33493)

Launched: 23/1/2009

Status: Operational. Following from the success of CO-57, CO-58, the University of Tokyo built PRISM to carry a larger camera with a telephoto lens. The packet downlink may be only available over the command stations in Japan, though the CW beacon is on world-wide. PRISM also has an uplink channel but frequency and modulation details have not been published yet.

Mode: -/U 1k2 AFSK or 9k6 GMSK

Downlink: 437.425 MHz

Mode -/U CW

Beacon: 437.250 MHz

<http://www.space.t.u-tokyo.ac.jp/prism/main-e.html>

KKS-1 (33499)

Launched: 23/1/2009

Status: Operational. KKS-1 transmits a series of messages on its CW beacon. Its mission is to demonstrate a laser ignition thruster and reaction wheels.

Mode: -/U CW message.

Beacon: 437.385 MHz

<http://www.kouku-k.ac.jp/~kks-1/kks-gs-top-e.htm>

PharmaSat (35002)

Launched: 19/5/2009

Status: Operational. Pharmasat is the successor to Genesat-1. It is a miniature biological laboratory containing a scientific experiment to determine how microgravity affects yeast resistance to an antifungal agent. Pharmasat transmits 1k2 packet beacons every 5 seconds.

Mode: -/U 1k2 AFSK

Beacon: 437.465 MHz

<http://www.crestnsp.org/pharmasat>

CP-6 (35004)

Launched 19/5/2009

Status: Operational. CP-6 transmits a CW ident then a frame of 1k2 FSK packet telemetry every 2 minutes. The suggested method of reception is to use LSB instead of FM into your TNC. A decoder program for Windows, Mac and Linux that displays and sends telemetry to California Polytechnic State University is also available at the website below.

Mode: -/U CW + 1k2 FSK

Beacon: 437.365 MHz

<http://moredbs.atl.calpoly.edu/>

VHF/UHF – An Expanding World

David Smith VK3HZ
vk3hz@wia.org.au

Weak Signal

David Smith VK3HZ

There is not a great deal of propagation activity to report on this month. However, Mike VK3KH discovered recently that there is still life in a seemingly dead band.

It is easy to think that winter time means that the VHF/UHF bands are dead, and that propagation is non-existent, even for someone like me who has been playing this game for 30 years. But you never know...

Friday morning 5th June looked like most other mornings for the last few weeks. No sign of the DX beacons on two metres that normally signal a chance of propagation, and even Mr Hepburn was showing no hope. A check of the VK Logger also showed no sign of activity.

However, one interesting observation was I noted Phil VK5AKK was logged on. Had not seen him on the logger for some time. I have worked Phil lots of times over the last few years and he is always one of the strongest stations out of the Adelaide area into this location if there is propagation.

I also know from experience that if Phil is on the Logger around this time of morning (8.00 - 8.30 am Melbourne time), he will have his radio on while he makes his breakfast.

With nothing to lose, I thought it was worth a try calling in his direction. I put out a call, and then listened. Nothing. I considered QSYing to 144.200 for the Aircraft Net, and was about to do it when I heard Phil calling QRZ - not very strong but very readable.

I answered his call and he quickly came back with a 5/1 report. I returned his report as 5/1 also, and we then chatted briefly, commenting we had not heard each other for a while, conditions had been lousy, etc. We then said our 73s and the contact was over.

Now this contact is not startling, we have done it many times before, and many times with signals up to 5/9. But it was 670 km, and a good readable contact

However it served to remind me that although we think the band may be dead, the research may tell you there is no propagation, it is still worth a try.

I just wonder how many times the band is open to somewhere, and because we only hear white noise from our receivers, we do not bother to call CQ. It is worth a try!

VK3UM Software Update

Doug VK3UM has been busy adding more features to his already comprehensive EMECalc program. This program can be used to model the performance of a planned station setup, or verify the performance of an existing station.

Despite the name, the program is not only for EME stations but also very useful for those interested in terrestrial weak-signal operation. The latest version includes a further 10 types of Dish feed including the RA3AQ designs, dual and single dipole configurations, dual patch (linear and circular) as well as Quad and Loop designs.

The software in a zip format may be obtained from several sites including: http://www.vk3bez.org/vk3um_software.htm

Several other programs are included in the package including EMRCalc - a program that should be mandatory for every amateur to use to ensure conformity with the EMR regulations

VK3UM EME Activity

Speaking of Doug, he sent this short report on his recent activity during the DUBUS 23 cm 2009 Contest on May 30/31:

I was about an hour late getting on for my moon rise on Saturday and may have missed a few North American stations.

Conditions were excellent both days except at low elevation when

considerable libration was evident. Unfortunately, the low angle made it harder for some in the northern hemisphere and reflected back on me when my greatest activity then occurred in the last few degrees of my moon. (with added ground noise).

As it happened, I worked PI9CAM starting at 0.2 degrees of moon on the Saturday but left someone in my 'moon shadow' on the Sunday! For me it was a rare event to actually work someone at 48 degrees elevation. On the high declination weekends it rarely gets above 28 degrees.

For a total of 54 QSOs and 48 multipliers, total score was 259,200 points.

A special thank you to David VK2JDS who came on CW unannounced and to Chris VK5MC who was running flea power to his new 10 metre dish. Very pleasant surprises.

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au.

Digital DX Modes

Rex Moncur VK7MO

Welcome to Brian VK3CCR, Roland VK4V DX and Doug VK4ADC who have joined in the 2 metre FSK441 meteor scatter activity. Brian completed his first contact with John VK4JMC, Doug his first contact with Rex VK7MO and Roland using only 30 watts and a 10-element Yagi; his first with Jim VK3II. Brian VK3CCR has also completed contacts on JT65a.

Phil VK4CDI is now active on 1296 MHz EME, using JT65c and has completed contacts with N9JEM, HB9Q, VK2JDS and RD3DA.

A North American meteor scatter group "Super 7" has introduced a "Ten Thousand Miles" award for completing FSK441 contacts over 1000 miles for a total of Ten Thousand Miles after 1 May 2009.

continued foot of next page

Silent Key

Ian Laurence Tinney VK4KAD

Ian Laurence Tinney, 'Tin', as he was known to friends, was born in Brisbane on July 24, 1948. Among his interests in life were amateur radio, photography, broadcasting and computer technology, and wandering the Queensland Outback. He had a special interest in the history of droving and early settlers.

He grew up in St Lucia, Brisbane, went to Ironside Primary School, then St. Peters, Indooroopilly. He became a technician in training in 1966 through the PMG, working in radio engineering at the ABC's Toowong studios in Brisbane. He also joined the Royal Australian Navy Reserve at HMAS Moreton (ships radio operator and helmsman).

Around 1967 he became involved with amateur theatre as a member of the Youth Players, while at the same time developing an interest in photography.

Later he returned to Brisbane and went to the University of Queensland to

study systems analysis, then advanced and quantum mathematics. He joined the Army reserve as a signaller in the Queensland Bush Rifles, and extended his amateur radio interests.

Rejoining the ABC in 1975, he began a long career with them including management and outback remote broadcasts, until 2001. After leaving, he moved to Crows Nest. He became a member of the Crows Nest Bush Fire Brigade, completed his training and took on the job of brigade communications officer. Tin became the brigade secretary in 2005 and held that position until he passed away.

With his technical background he was an active radio amateur on HF. He was often heard chasing low band DX, in RTTY contests and experimenting with position reporting systems. He joined the Darling Downs Radio

Club, and presented some interesting technical talks.

After an extended and tough fight with cancer he passed away at Toowoomba Hospice on 9 May 2009. His kindness, wicked sense of humour and true professionalism will be his legacy.

Submitted by Douglass Johnston VK4EKA.

ar



Over to you

Bouquet for GippsTech — Special Edition

Dear Editor,

I am somewhat ashamed to say that having been licensed for some thirty years, 2009 was the first year that I have attended a WIA AGM, this year held in conjunction with a special GippsTech at the Churchill campus of Monash University.

From my viewpoint the organisation of this event was flawless and the lecturers, presentations and lectures were most interesting.

I have to add that in many years as a student sitting in university lecture theatres, the presentation on software

designed radios by Phil Harman was perhaps the clearest exposition of a technical topic that I have ever heard.

My thanks to all involved in the organisation of this event.

Kevin B. G. Luxford
VK3DAP, ZL2DAP

ar

VHF/UHF from previous page

There are awards for single band and multi-band with 6 metres being the easiest and 2 metres more difficult. Full details of the award requirements are at <http://www.ykc.com/wa5ufu/Super7/S7Index.htm>.

The first award issued has gone not to North America but to VK with Rex VK7MO completing 10,000 miles as follows:

Please send any Digital DX Modes reports to Rex VK7MO at rmnour@bigpond.net.au.

ar

At right: Rex VK7MO's accumulation score on the more difficult 2 metre band

Ten Thousand Miles 2 Metre Inaugural Record—VK7MO

Date	Station	Distance (Miles)	Distance (km)
08-May-2009	ZL4DK	1157	1862
08-May-2009	ZL3TY	1214	1954
09-May-2009	VK4BG	1251	2013
09-May-2009	VK4JMC	1091	1756
22-May-2009	ZL4LV	1157	1862
22-May-2009	ZL3CU	1271	2045
23-May-2009	VK4CDI	1081	1740
23-May-2009	VK4EME	1186	1908
29-May-2009	VK4ADC	1102	1774
	TOTAL	10510	16914

Hamads classifieds

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Nick (02) 9477 2134

WANTED NSW

FT-902 in excellent condition, also acc. to make complete line up including speaker, vfo, tuner, transverter and FL-2100Z if available. Cash buyer Thanks. Mike VK2OT (02) 6647 3271

ADMIRALTY HANDBOOK OF WIRELESS TELEGRAPHY Vol 1 could somebody help, Nick (02) 9477 2134 L20106

FOR SALE VIC

From the deceased estate of VK3CBE. KENWOOD automatic antenna tuner - model AT-250. \$350 BWD Oscilloscope - model 821. Dual beam. 50 MHz bandwidth. Operator & service manual. \$250 VK3ZAN - QTHR. email: doidob@netspace.net.au - Phone 03-51567854.

TELEX TX20, with stand, spare boards and service manual. Contact Brian VK3TRI 03-59885-384 A/H

CHIRNSIDE CA33 20-15-10 M very good condition with instructions ready to pick up VK3MMM 58 Cranbourne Road Frankston 3199 \$250 (03) 9781 2886

TONO 7000E plus power supply and TONO monitor, manual with original packing, good order suitable CW learner or high speed one owner \$150 tot Geoff VK3ED 9746 1438

WANTED VIC

Wanted, an AR8 receiver, and or AT5 transmitter Also interested in any valve RX/TX. Working would be good but any condition OK. Will pay a fair price plus all transport costs. Genuine Collector Noel Laidlaw VK3JOD, QTHR either email at laidlaw@dodo.com.au or phone of an evening on 03 54641451

Either the power supply transformer or a complete FT-1012D in any condition, so long as the transformer is ok. Colin Schultz VK3COL QTHR vk3col@wla.org.au 0359861019 0408997819

FOR SALE QLD

Complete HF Station comprising a YAESU FT-1000MP HF tx/rx, includes a MH-31 hand held mike, a MD-100 desktop mike, SP-8 loud speaker with audio filters and 2 additional COLLINS filters in the intermediate frequencies. Includes a FL-7000 solid state linear amp capable of turning out 400+ watts. This combination allows the FT-1000MP to control the band selection in the FL-7000. Also the FL-7000 is able to control up to 4 separate antennas via a YAESU FAS-14R remote antenna relay (which has not been used since new). I have a full workshop manual for the FT-1000 MP as well as an Operating Manuals for the receiver and linear. I am currently using a GAP TITAN vertical antenna on all bands 80-10 m.

At today's prices this setup would set you back in the range of \$10,000.00 plus. I am retired and considering moving to a smaller habitat in the not too distant future. All the equipment is in excellent condition and working order. A minimum offer of \$4500.00 will secure the lot. Contact Harry VK4EL on 07 5445 2647 or email glenviewinfo@optusnet.com.au Mobile: 0408997819

Deceased Estate of my late father Joseph Parniczky: 1976 Manufacture Late Model COLLINS HF Radio Equipment. KWM-2A ROCKWELL COLLINS emblem HF transceiver with COLLINS accessories. 312B-5 VFO. 312B4 Speaker console, two 516F-2AC Power Supply, Two DL-1 Dummy Loads, One 75S-3C receiver, One 32S-3 transmitter (round emblems) two SM-3 Desk Miks, One COLLINS 30-S1 HF linear amplifier Three COLLINS 351R rack mounting adaptors. One HENRY 2K HF linear amp, One ETO ALPHA PA-78PAE HF linear amp Both Export Versions with 10 metres factory installed. TELREX sky needle big berth rotatable mast, Rotator & TELREX HF Quadbander trapped Yagi for 10-15-20-40 metres. Prefer Not to Separate, Sell as One Complete Package Open to sensible Offers, Complete Owners Manuals All items. Andrew Parniczky VK4FBI, PO BOX 1166, Coolangubra, 4225.QLD email vk4fbi@yahoo.com.au QTHR

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HELP WANTED SA

Help urgently wanted to put up a G5RV full size flat top antenna. I have masts wire and some insulators. I am unable to do this job on my own. Would anyone interested in assisting please phone me any evening on 8294 6906 after 2000 hours and arrange to come around to my QTH (Glenelg East) to inspect the situation. An arc welder would be desirable for putting up one or both masts, in addition to using 3/8 Dyna Bolt. M M Gell VK5ZLC

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A new Amateur Radio Wiki

has been started and can be found at
<http://www.amateur-radio-wiki.net>
*We are looking for writers of articles
suitable for this website.*

The intention is that it will become an
online encyclopaedia for hams.

*Please log into the site, register and
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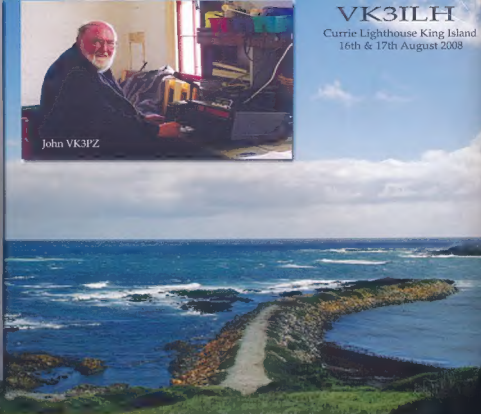
Broadcast details

VK1	VK1WIA:	Sunday 0900 local on the Mt Ginini repeaters 146.950 and 438.050 MHz. The UHF repeater requires 123 Hz access tone and is linked to the Goulburn repeater.
VK2	VK2WI:	Sunday 1000 and 1930 local, on 1.845, 3.595, 7.146, 10.125, 14.170, 28.320, 52.525, 145.6000, 147.000, 438.525 and 1273.500 MHz. Also 5.425 MHz USB in the morning. Plus provincial relays both sessions and country relays in the morning via local repeaters. VK1WIA news is included in the morning.
VK3	VK1WIA:	Sunday 10:30 am and 8 pm Local Time. Amateur Radio Victoria VK3BWI B/cast Network: 3.615, 7.158, 10.133, 147.250 VK3RMM Mt Macedon, 146.700 VK3RML Mt Dandenong, 147.225 VK3RWG Mt Baw Baw, 4339.800 VK3RML Mt St Leonard.
VK4	VK1WIA:	Sunday 0900 local via HF and major VHF/UHF repeaters.
VK5	VK5WI:	Sunday 0900 local, on 1.843, 3.550, 7.140, 28.470, 53.100 AM, 146.900 (SE), 146.925 (CN), 147.000 and 439.975
VK6	VK6WIA:	Sunday 0900 local, on 1.840, 3.582, 7.140, 10.125, 14.116, VK6RHF Perth 29.680, VK6RAP Perth 53.800, VK6RAP Perth 146.700, VK6RMW Mt William 146.900, VK6RBN Busselton 147.350, VK6RUF Roleystone 438.525, and on UHF CB Ch 1 Perth North. Sunday 1900 local, on 3.565, VK6RHF Perth 29.680, VK6RAP Perth 53.800, VK6RAP Perth 146.700, VK6RMW Mandurah 146.900, VK6RMS Mt Saddleback 147.250, VK6RBN Busselton 147.350, VK6RUF Perth 438.525, and on UHF CB Ch 1 Perth North Also in "Resaludio" format from the VK6WIA website.
VK7	VK7WI:	Sunday 0900 local, on 1.840 AM, 3.570, 7.090, 14.130, Hobart CB 27.225 LSB, 28.525, 53.825 FM, EchoLink Node 100478 (VK7AX-L) 145.350, VK7RMD NW 146.625, VK7RAD and VK7RHT South 146.700, VK7RNW NW 146.750, VK7RAA North 147.000, Ulverstone 147.425, Ulverstone 444.250/449.750 and Hobart UHF CB Channel 15. Tuesday 2100 local VK7RMD NW 146.625.
VK8		Sunday 0900 local, on 3.555, 7.050, 10.130, 14.180, 145.400 IRLP 6800 Katherine and 146.900 Darwin. Sunday 2000 local 145.400 IRLP 6800 Katherine.

Note that many clubs broadcast the WIA News via local VHF and UHF repeaters. Check the News section of the WIA website.

VK3ILH

Currie Lighthouse King Island
16th & 17th August 2008



The Currie Lighthouse

For the full ILLW story see pages 28 and 29.

And now for a bit of visible spectrum information. First lit in 1880, the lighthouse is constructed from more than 300 pieces of wrought and cast iron fabricated in England and assembled on site. The light flashes every 6.5 seconds from a 1000 Watt 120 V Tungsten Halogen Lamp with an intensity of 260,000 CD. The lantern stands 43 metres above the sea on a tower 21 metres high and is visible 22 nautical mile to sea.

It helps guard one of the most dangerous pieces of navigable water in the world, the entrance to Bass Strait between Cape Otway and King Island. This was the first landfall sailing ships would make after leaving Table Mountain in South Africa more than 5000 nautical miles astern. With that distance, and the Roaring Forties driving them on, any small error of navigation was disastrous, as it was for the more than 100 wrecks which litter the King Island coast. The loss of *The Cataragui*, near what is now Currie, with the loss of more than 399 lives, remains Australia's largest civil disaster. The light and Currie harbour at dusk is shown at right.



Another King Island lighthouse is at Cape Wickham, at the north of the island. It is made of local stone and at 48 metres is the tallest light in the Southern Hemisphere. With its counterpart on Cape Otway in Victoria it marks the bounds of the "Eye of the Needle", the 45 nautical mile wide entrance to Bass Strait.

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